PB-215 402

POLLUTION OF INTERSTATE WATERS MISSOURI RIVER, SIOUX CITY, IOWA, 23-27 MARCH 1959 (TRANSCRIPT OF HEARING). VOLUME 1

Public Health Service
Washington, D. C.

27 March 1959

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TRANSCRIPT OF HEARING

POLLUTION OF INTERSTATE WATERS
MISSOURI RIVER

SIOUX CITY, IOWA

VOLUME 1 OF 2 VOLUMES

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

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v.1 River [between Gavins Point Dam, S.Dak.,
v.2 and Omaha, Nebr.], Sioux City, Iowa, Mar.23-27,
1959, transcript of hearing [1959]

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(LC 70-611630) 8/16/71

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HEARING AT SIOUX CITY, IOWA concerning pollution of the interstate waters of the Missouri River between Gavins Point Dam, South Dakota, and Omaha, Nebraska

Pursuant to notice, this hearing convened at 9 a.m. on Monday, March 23, 1959, in the Federal Court Room, United States Post Office and Court Building, Sioux City, Iowa, before an eight-man board.

MEMBERS OF THE BOARD:

Mr. Chester S. Wilson, of St. Paul, Minnesota (Chairman);
Mr. Harvey A. Jones, representing Missouri;
Dr. G. J. Van Heuvelen, representing South Dakota;
Mr. Walter Kurylo, representing the Dept. of Commerce;
Mr. Blucher A. Poole, of Indiana;
Mr. Dwight F. Metzler, representing Kansas;
Mr. John S. Samson, representing Nebraska;
Mr. H. Garland Hershey, representing Iowa.

Mr. Robert Ayers, Secretary to the Board

APPEARANCES

For the Government:

Mr. Murray A. Stein, Washington, D. C.
Mr. Sidney Edelman, Washington, D. C.
Mr. John G. Detmar, Kansas City, Missouri
Mr. W. W. Towne, Cincinnati, Ohio

For the City of Sioux City:

Mr. George Davis, Sioux City, Iowa
Mr. Donald Pendleton, Sioux City, Iowa
Mr. Fred T. Kelly, Sioux City, Iowa

- - -

CHAIRMAN WILSON: The hearing will come to order.

This is a hearing ordered by the Secretary of Health, Education, and Welfare concerning the pollution of the interstate waters of the Missouri River between Gavins Point Dam, South Dakota, and Omaha, Nebraska. Mr. Robert Ayers the Executive Secretary of the Board, will read the notice of the hearing.

SECRETARY AYERS: Notice of this hearing was published in the Federal Register, Washington, D.C., Friday, February 27, 1959.

"Department of Health, Education and Welfare, Public Health Service, interstate waters of the Missouri River between Gavins Point Dam, South Dakota, and Omaha, Nebraska, public hearing concerning pollution.

"Whereas, upon written request of the Iowa State Department of Health, the official water pollution control agency of the State of Iowa, the Surgeon General of the Public Health Service called a conference pursuant to

Section 8 of the Federal Water Pollution Control Act (70 Statutes 504, 33 United States Code, 466g) with respect to the pollution of interstate waters of the Missouri River between Gavins Point Dam, South Dakota, and Omaha, Nebraska, and

"Whereas, such conference was held on July 24, 1958 at Sioux City, Iowa, and

"Whereas, the conferees representing the official State Water Pollution Control Agencies of the States of Iowa, Kansas, Missouri, Nebraska, and South Dakota, and the Surgeon General of the Public Health Service unanimously agreed:

"1. That pollution of interstate waters subject to abatement under the Federal Water Pollution Control Act is occurring in the Missouri River caused by discharges from municipalities and industries between Gavins Point Dam, South Dakota, and Omaha, Nebraska, and that such discharges cause or contribute to pollution of the Missouri River so as to endanger the health and welfare of persons in states other than that in which the discharges originate.

"2. That the major sources of such pollution are untreated sewage and industrial wastes discharged by Sioux City, Iowa, and the industrial establishments located in the Sioux City, Iowa, area which were identified at the conference as:

"Tri-State Produce Company, 505 South Howard Street, Sioux City, Iowa.

"Sanitary Rendering Company, Stock Yards Station, 1516 Bluff Road, Sioux City, Iowa.

"Meyer Packing Company, Chicago and Lafayette Streets, Sioux City, Iowa.

"Allied Laboratories, Inc., 1100 Bluff Road, Sioux City, Iowa.

"Armour and Company, 902 South Chambers Street, Sioux City, Iowa.

"Sioux City Dressed Beef Company, 1911 Warrington Road, Sioux City, Iowa.

"Sioux City Stock Yards Company, 340 Livestock Exchange Building, Sioux City, Iowa.

"Raskin Packing Company, 1918 Jay Street, Sioux City, Iowa.

"Smith Packing Company, Chicago and Prospect Streets, Sioux City, Iowa.

"Swift and Company, 2001 Leech Avenue, Sioux City, Iowa.

"Sioux City Dressed Pork Company, Post Office Box 25 Stock Yards Station, Sioux City, Iowa.

"3. That the effects of such pollution are (1) deterioration of water quality for public water supply at Omaha, Nebraska, with associated enhancement of possible disease transmission; (2) increased concentrations of coliform and other organisms associated with human diseases which constitute a health hazard to commercial and recreational users of the river; (3) deterioration of water quality so as to interfere with navigation and create a health hazard to persons engaged in navigation, river dredging and other river improvement activities; (4) creation of sight and odor nuisances; (5) deterioration of water quality so as to create conditions inimical to fish and aquatic life.

"4. That the measures presently used for the disposal of sewage and industrial wastes from Sioux City and the aforesaid industrial establishments are not adequate to secure abatement of such pollution of the interstate waters of the Missouri River.

"5. That the delays encountered in the abatement of such pollution are due to the lack of installation of adequate waste treatment facilities or other methods of control of pollution by the municipality and industries concerned.

"6. That Sioux City, Iowa, and the aforesaid industrial establishments provide adequate treatment for such sewage and wastes and

"(a) That by January 1, 1959, each industry in the Sioux City, Iowa, area notify that city as to the waste loading to be contributed by industry to the city municipal system and to serve as a basis of design for the municipal sewage treatment facility. If not, each such industry will be responsible for its own treatment and progress commensurate with the time schedule for remedial action set forth below for Sioux City;

"(b) That by February 1, 1959, Sioux City, Iowa, arrange for completion of final plans and specifications for sewage treatment facilities; that such final plans be completed by July 1, 1959;

"(c) That by April 1, 1959, Sioux City arrange for financing the construction of its sewage treatment facilities;

"(d) That by September 1, 1959, Sioux City, Iowa, award a construction contract for Stage I construction, including the plant, and sections B, D, F, G, and H, as these appear on page 28 of the 'Preliminary Report, Sewage Treatment Facilities for Sioux City, Iowa, 1957' prepared by engineering consultants Buell and Winter, Sioux City, Iowa, and by Howard R. Green Company, Cedar Rapids, Iowa, and that Sioux City, Iowa, award construction contracts for the remaining work by July 1, 1961;

"(e) That all the discharges of paunch manure, bedding, and related wastes, into the Missouri River or tributaries thereof by industries in Sioux City, Iowa be stopped by September 1, 1958, and

"Whereas, the Surgeon General of the Public Health Service on September 5, 1958, recommended to the Iowa Department of Health that it take the necessary remedial action under state law to secure compliance by Sioux City, Iowa, and the industrial establishments aforesaid with the recommendations of the conferees and

"Whereas, I find that remedial action has not been taken and that other action reasonably calculated to secure abatement of such pollution has not been taken by Sioux City, Iowa, and such industrial establishments,

"Now therefore, pursuant to Section 8 (e) of the Federal Water Pollution Control Act (70 Statutes 505, 33 U. S. C. 466g (e)), I hereby call a public hearing to begin at 9 a.m. Central Standard time on March 23, 1959, at the District Court Room, U.S. Post Office and Courthouse, Sixth and Pearl Streets, Sioux City, Iowa, before a hearing board composed of the following named persons:

"Mr. Chester Wilson, Chairman;

"Mr. H. Garland Hershey, representing the State of Iowa;

"Mr. Freeman R. Johnson, representing the State of Missouri;

"Mr. Walter Kurylo, representing the United States Department of Commerce;

"Mr. Dwight Metzler, representing the State of Kansas;

"Mr. Blucher Poole;

"Mr. John S. Samson, representing the State of Nebraska;

"Dr. G. J. Van Heuvelen, first alternate Mr. Harry R. Woodward, second alternate Mr. Charles E. Carl, representing the State of South Dakota.

"On the basis of the evidence presented at such hearing, the Board shall make findings as to whether Sioux City, Iowa, and the aforesaid industrial establishments are causing or contributing to the pollution of the interstate waters of the Missouri River between Gavins Point Dam, South Dakota, and Omaha, Nebraska, which endangers the health or welfare of persons in states other than Iowa, and whether, if it so finds, effective progress toward abatement thereof is being made. If said Board finds that such pollution is occurring and that effective progress toward abatement is not being made, said Board shall make its recommendations to me concerning the measures, if any, which it finds reasonable and equitable to secure abatement of such pollution.

"Notice of such public hearing is hereby given to the following:

"Iowa State Department of Health, State Office Building, Des Moines, 19, Iowa;

"Missouri Water Pollution Board, Jefferson City, Missouri;

"Nebraska Department of Health, Lincoln 9, Nebraska;

"Kansas State Board of Health, Topeka, Kansas;

"South Dakota Committee on Water Pollution, Pierre, South Dakota;

"City of Sioux City, Iowa;

"Tri-State Produce Company, 505 South Howard Street, Sioux City, Iowa;

"Sanitary Rendering Company, Stock Yards Station, 1516 Bluff Road, Sioux City, Iowa;

"Meyer Packing Company, Chicago and Lafayette Streets, Sioux City, Iowa;

"Allied Laboratories, Inc., 1100 Bluff Road, Sioux City, Iowa;

"Armour and Company, 905 South Chambers Street, Sioux City, Iowa;

"Sioux City Dressed Beef Company, 1911 Warrington Road, Sioux City, Iowa;

"Sioux City Stock Yards Company, 340 Livestock Exchange Building, Sioux City, Iowa;

"Raskin Packing Company, 1918 Jay Street, Sioux City, Iowa;

"Smith Packing Company, Chicago and Prospect Streets, Sioux City, Iowa;

"Swift and Company, 2001 Leech Avenue, Sioux City, Iowa;

"Sioux City Dressed Pork Company, Post Office Box 25, Stock Yards Station, Sioux City, Iowa.

"Dated: February 20, 1959." And signed by Arthur S. Flemming, the Secretary of the Department of Health, Education and Welfare, with the great seal of the department attached.

That completes the reading of the notice, Mr. Chairman.

CHAIRMAN WILSON: I will introduce the Members of the Board from right to left and ask each member to stand as I call his name.

First on my right is Mr. Harvey A. Jones, the Chairman of the Missouri Water Pollution Control Board of Jefferson City, Missouri, who was appointed by Secretary Flemming as alternate and substitute for Mr. Freeman R. Johnson, who was unable to attend.

MR. DAVIS: What is his name, sir?

CHAIRMAN WILSON: Harvey A. Jones.

MR. DAVIS: And he replaces whom?

CHAIRMAN WILSON: He replaces Mr. Freeman R. Johnson.

MR. DAVIS: Thank you.

CHAIRMAN WILSON: Second is Dr. G. J. Van Heuvelen, the State Health Officer and Chairman of the South Dakota Committee on Water Pollution.

Next is Mr. Walter Kurylo, of the Bureau of Public Roads, representing the United States Department of Commerce of Washington, D. C.

Next is Mr. Blucher A. Poole, the Technical Secretary of the Stream Pollution Control Board of Indiana.

And next on my left is Mr. John S. Samson, the Chairman of the Water Pollution Control Council of Nebraska.

Next is Mr. Dwight F. Metzler, the Chief Engineer and Director of the Division of Sanitation of the Kansas State Board of Health of Topeka, Kansas.

And finally Mr. H. Garland Hershey, the Chairman of the Iowa Natural Resources Council of Iowa City, Iowa.

And I am Chester S. Wilson, Chairman of the Board, legal counsel for the Minnesota Water Pollution Control Commission.

I will now call for the appearances of parties interested in the proceedings. First appearances in behalf of the Surgeon General of the United States Public Health Service.

MR. STEIN: I would like to make an appearance on behalf of the Surgeon General of the Public Health Service of Murray Stein, Chief of the

Interstate Enforcement, Public Health Service, Mr. Sidney Edelman, Office of the General Counsel, Department of Health, Education and Welfare, and Mr. John G. Detmar, Assistant Regional Attorney, Department of Health, Education and Welfare, with headquarters in Kansas City. In addition we will have technical assistance from Mr. W. W. Towne, Chief of Water Pollution Control of the Robert A. Taft Sanitary Engineering Center of Cincinnati, Ohio, a Public Health Service installation.

CHAIRMAN WILSON: Are there appearances for any other Federal agencies? If you know of any, Mr. Stein, who do not voluntarily appear, you might note them for the record.

MR. STEIN: Yes, sir. I do not think there will be any appearances except as witnesses from other public agencies.

CHAIRMAN WILSON: Are there any appearances for any of the state agencies other than as represented on the membership of the Board? If the members of the Board know of any who are here, will you please call attention to them at this time.

MR. HERSHEY: The State Department of Health from Iowa, I believe, has a statement to make and I am not sure whether the State Conservation Commission or the Izaak Walton League of Iowa will appear to make a statement. I believe they are represented, however.

CHAIRMAN WILSON: Well, if they appear they will be given an opportunity to be heard.

MR. SAMSON: Mr. Chairman, on behalf of the State of Nebraska, Mr. Filipi, with the Department of Health and with the Water Pollution Control Council, will make an appearance.

CHAIRMAN WILSON: What is his full name?

MR. SAMSON: Ted Filipi. Ted, what are your initials?

MR. FILIPI: T. A. Filipi, F-i-l-i-p-i. At this time I would like to announce that we would have some witnesses and persons that we want to present at the hearing when the proper opportunity is so presented. Do you want the names at this time, sir?

CHAIRMAN WILSON: No. We just want the appearances at this time. You will be given an opportunity to make your presentation in the regular order.

DR. VAN HEUVELEN: Mr. Chairman, from South Dakota, the two delegates, alternates whom you mentioned, Mr. Harry Woodward of the Department of Game, Fish and Parks, Mr. Charles Carl, who was the Director of the Division of Sanitary Engineering in the State Health Department, and also Mr. Donald Kalda, who is the Chief, Section of Water Pollution Control, Division of Sanitary Engineering, Health Department. They are all here this morning.

MR. JONES: Mr. Chairman, Mr. Jack K. Smith, the Executive Secretary of the Missouri Water Pollution Control Board, is here and will make an appearance.

CHAIRMAN WILSON: Any other appearances for state agencies?

MR. SAMSON: I might say that I see Mr. George C. Pardee, their general counsel for the Metropolitan Utilities District. It is possible he will make an appearance here. I don't know.

MR. PARDEE: By way of explanation--thank you, Mr. Samson--we are not appearing as a litigant and in that respect I did not feel it was appropriate to make an appearance. We are merely presenting some evidence as a part of the case for the State of Neberaka.

MR. SAMSON: Yes. All right.

CHAIRMAN WILSON: Now appearances on behalf of the parties listed in the notice as being responsible for pollution. Are there any such appearances?

MR. DAVIS: Mr. Chairman, my name is George Davis. I appear as legal counsel for the City of Sioux City, Iowa. With me during this, that is present, will be Mr. Donald Pendleton, the city attorney for the City of Sioux City, Iowa. Also present during the hearing will be Mr. Fred Kelly, a city councilman for the City of Sioux City, Iowa. The city manager, Mr. Cornelius Bodine, will be present at different times during the process of the hearing.

MR. SAMSON: How do you spell Bodine?

MR. DAVIS: B-o-d-i-n-e.

MR. SAMSON: Thank you.

MR. STILWILL: Mr. Chairman, I am C. F. Stilwill, S-t-i-l-w-i-l-l, of Sioux City, and I represent Allied Laboratories, Inc. I have a motion to dismiss, an application to dismiss, as to us for the reason that we have not been manufacturing in Sioux City since 1955. I would like to file that application at this time and ask the Chairman at what time it should be--

CHAIRMAN WILSON: We will give you an opportunity just as soon as we get through noting the appearances.

MR. STILWILL: May I file it now?

CHAIRMAN WILSON: If you will wait, please, until we get through noting the appearances.

MR. STILWILL: Very well.

CHAIRMAN WILSON: Any other appearances for parties charged with responsibility under the notice?

MR. BARON: I am A. H. Baron. I am appearing for Tri-State Produce Company of Sioux City.

MR. SHULL: Mr. Chairman, I am Henry Shull, S-h-u-l-l, and I am appearing for Armour and Company and Swift and Company.

MR. MARSHALL: I am Jesse E. Marshall, and I am appearing for Meyer Packing Company, Sioux City Dressed Beef, Inc., Sioux City Dressed Pork, Inc.--incidentally, I would like to call attention to the fact that those are improperly named; they are not company but I-N-C, those two companies--the Sioux City Stock Yards Company and Raskin Packing Company and Meyer Packing Company.

MR. GUNNELL: I am J. M. Gunnell, G-u-n-n-e-l-l, attorney for the Sanitary Rendering Company.

MR. WADDEN: S. F. Wadden, W-a-d-d-e-n, Smith Packing Company.

CHAIRMAN WILSON: Are there any other appearances for parties who made written application to the Secretary of Health, Education and Welfare for being recorded as interested parties?

If there are none, I just want to say generally that if there are any others here or others who appear during the course of the hearing representing organizations concerned with the problem under consideration here and who wish to have the opportunity of presenting evidence or submitting statements or arguments, that they should register their appearance with the Secretary indicating what organization or interest they represent and asking to have an opportunity to make a presentation, and under the regulations those will be considered by the Board and if possible an opportunity will be given for such presentations. Because of the necessity of getting on with an orderly hearing which will cover quite a lot of ground, we can't throw this hearing open for a free-for-all discussion, so it will be necessary for anyone else outside of the interested parties who have now registered their appearance to submit their request and let the Board consider it. I want to say further on that score that if it should transpire that there would be quite a group of such parties, we would ask that during recesses of the hearing they confer with one another and try to agree on a common spokesman to present their case so as to avoid duplication.

It is not necessary for parties or witnesses who are going to be called by counsel for the parties who have already recorded their appearance to make any such request. If there are no such requests to be submitted now, they may be submitted later in the course of the hearing.

Now, the order of the hearing will be, first, the presentation of evidence by the representatives of the Surgeon General, then by the state agencies, then by the parties charged with responsibility for pollution, and then others, if any appear, and at the conclusion of the hearing if there are any oral arguments to be presented they will be presented in the reverse order.

Now may I remind you all again of what I said before the hearing was opened, that under the rules of the Federal Court, whose room we are using by courtesy of the Judge, no smoking is permitted in this courtroom at any time, so it will be necessary to defer that until we retire for recess. There is, however, no objection to the press or anyone else taking photographs during the course of the hearing.

Mr. Stein, you may proceed on behalf of the Surgeon General.

MR. STEIN: Thank you, Mr. Chairman.

MR. DAVIS: Mr. Chairman.

CHAIRMAN WILSON: Oh, I beg your pardon. If there are any motions to be made they will be entertained at this time.

MR. STILWILL: If it please the court, I would like to file an application for dismissal with the Board. I have prepared several copies, but if you need more I would be glad to give them to you. The motion is on behalf of Allied Laboratories, Inc., who prior to 1955 conducted a serum manufacturing company in the area of the Stock Yards and in connection therewith there was certain waste products which went into the river. That manufacturing process was discontinued in 1955 entirely and the premises are now used only as a point of distribution for various veterinary supplies and merchandise, and we ask, therefore, that we be dismissed from this hearing. I am sure you can understand that it would be quite a burden for this company if it had to follow through on this hearing and subsequent hearings and possible litigation that might follow.

Now, I have supported the application by an affidavit, but if the Board desires to have testimony, sworn testimony, on it I would be glad to present it. But I thought perhaps that was not necessary under the circumstances and since your procedure was informal.

CHAIRMAN WILSON: Has counsel for the Surgeon General anything to say on this motion?

MR. STEIN: Sir, we would suggest that we wait until the conclusion of the hearing until we hear the State of Iowa's presentation before we make a recommendation on this matter.

MR. STILWILL: May I ask, do you desire us to have testimony or will the affidavit be sufficient?

MR. STEIN: The affidavit will be sufficient. As we understand the matter, this cessation, or alleged cessation, of activities had not been reported to the state and was not indicated at the conference previously held on this matter.

MR. STILWILL: I see.

MR. STEIN: And unless Iowa says something to the contrary, we will be happy to honor it.

MR. STILWILL: Thank you.

CHAIRMAN WILSON: Then will it be satisfactory if the Board takes this motion under advisement for determination at the conclusion of the hearing?

MR. STILWILL: Yes. I would appreciate this courtesy, if I might. If later you desire any testimony or you desire to hear from me, if your Secretary would get in touch with me I would appreciate it. Then it would save me sitting through several days of hearing.

CHAIRMAN WILSON: With that understanding, the Board will take this motion under advisement.

MR. STILWILL: Thank you, sir.

CHAIRMAN WILSON: And I might say for the benefit of counsel that the Board has adopted a ruling that all motions and objections and exceptions made during the course of the hearing will be ruled on by the Chairman, subject to appeal to the Board by counsel for any interested party or by any member of the Board, and in the course of examining witnesses the examination will be conducted in the usual way, first by counsel presenting the witness, with cross-examination by the opposing counsel, and then questions will be permitted by counsel for other interested parties and members of the Board.

Are there any other motions to be made at this time?

MR. DAVIS: Mr. Chairman, I have no motion to make at this time, but I would like to file with the Board the answer of the City of Sioux City in this matter. I originally rose to ask you for the procedure which you were going to follow, but you have already answered my question mainly. Am I to understand that we will proceed by questions and answers and cross-examination? Is that correct, sir?

CHAIRMAN WILSON: That is right.

The answer will be filed with the Secretary.

MR. BARON: Mr. Chairman, I would like to make an oral motion at this time on behalf of the Tri-State Produce Company, who have installed a Barker system of traps and screens in their plant and claim that their method of operation has no effect on pollution whatsoever, and at this time asks that their name be stricken from the list of parties named at this hearing. We will be glad to furnish evidence at the proper time to that effect should the Board so desire.

CHAIRMAN WILSON: Mr. Stein, have you anything to say on that motion?

MR. STEIN: I think this is a factual situation which should be supported by the evidence and we would recommend that, again, the Board defer judgment on this until evidence is adduced before this Hearing Board to show that the remedial measures in fact cause the removal of wastes as claimed.

CHAIRMAN WILSON: That motion will be denied. It appears to go directly to an evidentiary question.

MR. BARON: Mr. Chairman, may I ask that the Board hold the motion in abeyance until the hearing proceeds to the hearing of testimony? Now, I don't know just how soon the Board will be prepared to hear testimony with reference to my particular client, but I merely make the motion as a matter of record and naturally intend to back it up with evidence at the proper time.

CHAIRMAN WILSON: Your motion has already been noted in the record and you may take an exception to the denial, but it appears to the Chairman that the motion goes to the very gist of the proceeding and involves the conclusions to be made by the Board upon the evidence. So what you are doing is asking for a dismissal in advance of the presentation of evidence. If you want to have an appeal to Board on denial of the motion, you may have one, but otherwise the motion will stand denied and you may have an exception to it.

MR. BARON: Exception noted.

CHAIRMAN WILSON: Any other motions?

If not, Mr. Stein, you may proceed.

MR. STEIN: Thank you, Mr. Chairman. Before we get into the presentation of the case we should like to present for the record an affidavit of service of the notice issued by the Secretary of Health, Education and Welfare, read into the record by the Executive Secretary. This affidavit of service indicates that the notice was served on all parties named in the notice by Registered mail with return receipt requested and the return receipts are attached to this affidavit.

MR. DAVIS: No objection to submission.

CHAIRMAN WILSON: It will be received, filed by the Secretary.

MR. STEIN: In addition, Mr. Chairman--

MR. DAVIS: Excuse me, Mr. Stein, a moment. Are you going to file that as a part of the pleadings here or are you going to have them marked as exhibits?

MR. STEIN: That is part of the pleadings.

MR. DAVIS: I see.

MR. STEIN: We will not make that an exhibit.

In addition, Mr. Chairman, before we begin, we do have a communication directed to the Board by the Honorable Herschel C. Loveless, Governor of the State of Iowa. And with your permission we should like to ask if the Secretary of the Board might read this letter addressed to the Board for the record.

CHAIRMAN WILSON: Any objection?

MR. DAVIS: Mr. Chairman, may I read the communication before deciding?

CHAIRMAN WILSON: Yes. Please show it to counsel.

MR. STEIN: Yes, sir.

MR. DAVIS: At this time, Mr. Chairman, the City of Sioux City objects to the receipt in this matter or reception in evidence of the letter from Governor Loveless because it is evidentiary in nature and the City would not have an opportunity of cross-examination of the writer of the letter.

CHAIRMAN WILSON: May we see the statement?

MR. STEIN: Yes, sir.

CHAIRMAN WILSON: This communication will be received subject to the objection. Have you had it marked for identification?

MR. STEIN: No, sir. May we have this marked as Government Exhibit No. 1.

(Government's Exhibit No. 1 marked for identification and received in evidence.)

MR. DAVIS: Mr. Chairman, I take it it is not necessary for me to note an exception each time that an objection is overruled?

CHAIRMAN WILSON: It may be understood that exceptions will be taken--

MR. DAVIS: Automatically without my noting them at the time?

CHAIRMAN WILSON: Yes, in the case of the overruling of any objection.

MR. DAVIS: On all objections.

CHAIRMAN WILSON: That may be noted for the record.

MR. STEIN: May we have that letter read, sir?

SECRETARY AYERS: It hasn't been offered yet.

MR. STEIN: It has been offered as Government Exhibit No. 1.

SECRETARY AYERS: It has been offered?

MR. STEIN: Yes.

CHAIRMAN WILSON: As long as it is your offer you may read it, Mr. Stein.

MR. DAVIS: Mr. Chairman, I want to note the same objection to the reading of the letter as I did to its offer into evidence.

CHAIRMAN WILSON: The exception will be noted. The Board will take all such objections under advisement and consider the relevancy and materiality of it before giving any weight to it.

MR. DAVIS: And I would like to add to my objection that it is irrelevant and immaterial to the issues that the Board is hearing.

CHAIRMAN WILSON: The objection is overruled.

MR. STEIN: This letter is dated March--

CHAIRMAN WILSON: And the statement is received subject to the objection and to further consideration by the Board as to its relevancy and materiality, and that will apply to all the statements that may be received.

Go ahead, Mr. Stein.

MR. STEIN: This letter is dated 20 March 1959, addressed to: "Hearing Board, DHEW, care of Chester Wilson, Hearing Officer, Sioux City, Iowa.

"Gentlemen: For your general information in connection with the hearing I understand will be held in Sioux City on the sewage problem, I have had compiled certain statistics on sewage treatment systems in Iowa towns and cities.

"Of the 408 Iowa communities having sewer systems, 320 now have some type of treatment plant, an additional 21 towns now have treatment facilities under contract, bringing to a total of 341 out of 408 towns and cities with existing or proposed sewage treatment.

"At present the following Mississippi River towns have treatment plants: Burlington, West Burlington, Davenport, Bettendorf, Montrose, Middleton, West Point, Dubuque, and the City of Clinton has taken steps to provide for a treatment plant. Very truly yours, (signed) Herschel C. Loveless, Governor."

Mr. Chairman, under Section 8 of the Federal Water Pollution Control Act, pollution of interstate waters which endangers the health or welfare of persons in a state other than that in which the discharge originates is subject to abatement.

CHAIRMAN WILSON: I understand, Mr. Stein, you are now making an opening statement?

MR. STEIN: An opening statement, yes, sir.

CHAIRMAN WILSON: You may proceed.

MR. STEIN: This abatement procedure, very briefly, is comprised of three steps under the law: 1, calling of a conference; 2, the holding of a hearing such as this; and 3, if necessary, court action.

Under the law the Surgeon General of the Public Health Service is required to call such a conference on the request of an official state water pollution control agency. In accordance with a written request dated April 18, 1958, from the Iowa Commissioner of Public Health, the Surgeon General called a conference in the matter of interstate pollution of the Missouri River from Gavins Point Dam to Omaha, Nebraska. In his letter requesting the conference the Iowa Commissioner of Public Health pointed out that the state had initiated proceedings to secure abatement of this pollution from the Sioux City area in 1954 and that the city at that time agreed to go along with an abatement procedure by installing remedial measures, but a subsequent city administration issued a resolution indicating that it did not propose to take remedial measures to abate this pollution and, therefore, the Iowa Commissioner of Public Health, who represents the official State Water Pollution Control Agency of Iowa, asked the Surgeon General to call this conference.

Such a conference was called and held in Sioux City, Iowa, on July 24, 1958. Conferees representing the official State Water Pollution Control Agencies of Iowa, Kansas, Missouri, Nebraska, and South Dakota attended the conference. These conferees unanimously agreed that pollution subject to abatement under the Federal Act was occurring, that the main contributor to this pollution in this area was Sioux City and the industries located within that city. The conferees also established a time schedule for remedial action. Sioux City has not taken any remedial action to comply with this time schedule and, as their resolution indicates and the evidence before this Hearing Board will show, has passed a resolution indicating that they will not take such action unless they are so ordered.

The Public Health Service has taken all steps required by law before the calling of this hearing by the Secretary of Health, Education and Welfare.

1, the conference was called, summaries of the conference were distributed to the conferees as required by law, and the Surgeon General in distributing these summaries made a recommendation to the Iowa Commissioner of Public Health that steps be taken under that state program and state law for the installation of remedial measures by Sioux City and the industries.

A representative of the Iowa Health Department replied to that communication and stated that after consultation with the State Attorney General he felt that action had been started in 1954 by the State of Iowa, that action was pending, and there was no telling when that action would be completed, and the State of Iowa recommended that a public hearing under the Federal Water Pollution Control Act be held as soon as possible.

Now, with all these preliminaries completed the Secretary called a public hearing in this matter. I might say that under the Federal law the Secretary's action is also mandatory. That is, the Secretary of Health, Education and Welfare is required to call a hearing of this kind if the state does not take remedial action to secure abatement of the pollution in accordance with the recommendations or action reasonably expected to secure abatement of pollution is not taken.

Now, there are two reasons that the Secretary can call this conference. Neither of these occurred and the Secretary was required to call the conference, although in our opinion either one of these would have made it mandatory, the occurrence of either one of these would have made it mandatory for the Secretary to call the hearing.

Now what we are dealing with here is pollution of an interstate stream. Under the Federal Act, for abatement procedures to take place pollution must occur of interstate waters. Interstate waters are defined by the Federal Act as all rivers, lakes and other waters that flow across or form a part of boundaries between two or more states. I think it will be rather evident that the Missouri River meets that definition of an interstate water.

I also point out that we are dealing here with pollution of a regulated stream. Since the installation of dams on the Missouri River above Sioux City and with the regulation of flow from Gavins Point Dam, there is just a rather fixed amount of water that flows down the Missouri River and is available for water supply, navigation, the carrying away of wastes, and all the other water uses. In the foreseeable future the evidence will show that this pattern of stream flow down the Missouri River will not be changed very much. That is about all the water the people in this region are going to have for many, many years to come.

Now, 1, where does this pollution come from? I think that the evidence will show that the major source of pollution in the area between Gavins Point and Omaha is Sioux City, Iowa, and its industries. The pollution or significant pollution does not come in from tributaries, it does not wash off from farms, it does not come in from cattle grazing in the fields. The big bulk of the pollution comes directly from Sioux City, Iowa, and its associated industries.

Now, the pollution loading from Sioux City is an ordinary, garden-variety pollution; that is, wastes from the normal city operations and organic loading coming from stock yard and associated industries. The wastes coming out are not esoteric in nature. They are amenable to known and reasonable methods of treatment. And I think when we get into the evidence there is always a tendency for the scientists to speak in terms of curves, coliform indexes, bio-chemical oxygen demand, and it sort of has an antiseptic sound, but actually what we have coming from Sioux City is an outpouring of the untreated wastes from toilets and bathrooms of a large city, the wastes from kitchens, from street washings and industrial wastes. These wastes--and we may be in a position here of proving the obvious to the Board--contain large numbers of bacteria and other pathogens. And in Sioux City in particular the wastes, both that come from humans and warm-blooded animals, contain these pathogenic organisms which are harmful to man.

The key question here is whether this pollution endangers the health or welfare of persons in a state other than Iowa, and in order to really firm up the issue before the Board I want to at this point read an excerpt from the Resolution of the City of Sioux City on this matter, because I think--

MR. DAVIS: Mr. Chairman, I might say in advance I am somewhat surprised that we are having opening statements. I didn't know that we were. We started with an exhibit being offered in evidence and then the statement and I am sure that the Board has already been advised by you that this is not evidence but a statement of what he will try to prove.

Now, with reference to the Resolution that he is going to read, obviously that is evidence and it would seem to me that the time to place it before the Board for consideration would be when evidence is offered.

MR. STEIN: We are not offering it.

CHAIRMAN WILSON: Do you have any objection to treating it in that manner, Mr. Stein?

MR. STEIN: We are not offering it as evidence at this time.

MR. DAVIS: Then I object to it as not being properly a part of an opening statement, Mr. Chairman.

CHAIRMAN WILSON: Well, I think, Mr. Davis, that counsel is merely including that as part of his general statement of what he proposes to prove and the Board will take it for what it is worth in that connection, and if you claim that any issue over its evidentiary value is involved you may have your objection and we will take it subject to the objection and to further consideration by the Board as to its relevancy and materiality.

MR. DAVIS: At the time that it is offered? All right, sir.

CHAIRMAN WILSON: But you may proceed, Mr. Stein. You are simply stating now what you expect to prove.

MR. STEIN: We are just putting this forward, not at this time for an evidentiary matter, but just to sharpen up the issues. I might indicate here that our function is to help the Board in its fact-finding capacity and to present the issues before the Board and let the facts come out. We are using this method as a means of getting the issues before the Board very early so the facts can be appraised.

Now, 1, the Resolution of Sioux City indicating that Sioux City will not go forward with further treatment indicates, for these reasons, three factors:

"a. The presently unknown degree of correctible influence of industrial wastes in Sioux City on the bacteria count in the river at Omaha.

"b. The lack of convincing clarity on the part of Federal and State authorities as to the precise nature of the health hazard in Omaha's treated water resulting from the existing or potential bacteria count in the river at Omaha.

"c. The tangible steps being taken by the City of Sioux City toward sewage treatment, estimated in 1958 to cost $600,000."

Now, the reason I bring these forward at this time is to indicate the scope of what the Government's evidence will show. While not attempting to minimize the bacteria count at Omaha, this is just one portion or one manifestation of the effects of this pollution. As I said, we are not dealing here with whether pollution is sufficient or not. Sioux City is taking the wastes from a large city and a large industrial establishment, pouring those into the river untreated. These wastes affect in a harmful way a variety of water uses right down across the river from South Sioux City all the way down to Omaha, and I think if we begin to single out just the effects of this pollution just at the border intake of the City of Omaha we are losing the tremendous impact of the effect of the sewage pollution on the people of this area.

The second point is that the City of Sioux City has taken steps toward pollution amounting to $600,000 in 1958. I think the evidence will show that this construction consists of an interceptor sewer to be fitted in with a road program and this construction will not in any way, in one whit, reduce pollution of the Missouri River from the Sioux City area. The wastes will flow into the river untreated as before if this goes in. Now, that is what I think we have to think of when we are talking about what the Government's evidence, or the evidence the Government will put on, will show.

Now, increased concentrations of coliforms and other organisms associated with human disease which constitute a health hazard will be shown by the evidence to present this health hazard to commercial and recreational users of the river.

I think the evidence will show what everyone knows: 1, that the river in fact is used for swimming, that witnesses will show that on the Nebraska side during the summer knots of boys are at every river landing swimming in that river.

The evidence will show that the river is increasingly being used for boating. And the evidence will show that the spray from the waters of the Missouri River present a health hazard to the people in these boats.

The evidence will show that the Missouri River presents the greatest water recreation potential for this part of the country of any natural resource that the people in this valley are possessed with. The majority of people in Nebraska live in the eastern part of the state. Most of the water resources of that state other than the Missouri River are in the western part of the state. The State of Nebraska right now is developing artificial lakes at a rather high cost in order to provide water recreation for their people. If the Missouri River could be used the evidence will show that the value just in water area of that as a recreational potential will practically amount to the cost of adequate sewage treatment in Sioux City.

The evidence will show that the United States Department of Interior, Fish and Wildlife Service is presently going ahead with the construction of a wildlife refuge at DeSoto Bend above the City of Omaha. This area will be also used for swimming, boating, water skiing, and other sports if the water is of pure enough quality and pollution is absent to allow such uses to be made of it. The evidence will show that the Government already, right now, is acquiring land for this DeSoto Bend project and unless this pollution is cleaned up probably the greatest single recreational area in this region of the country will not be able to be used to its full capacity.

The evidence will show that the Missouri River in general, just as a part of an area, will be one of the greatest potential recreational areas for this part of the country.

Evidence will also show that pollution from Sioux City and its associated industries is so deteriorating water quality as to create a health hazard and operational difficulties to persons engaged in navigation, river dredging and other river improvement activities. The Corps of Engineers has an extensive program in this area to make the river suitable for navigation and to stabilize the channel. In addition to the health hazards to recreational users of the river, of course the commercial fishermen of this area are subject to the same health hazards.

The evidence will show that pollution from Sioux City has created sight and odor nuisances which have been inimical to the enjoyment of the river as a recreational area. The evidence will show that men taking their daughters out on the river for a weekend of boating have been so repelled by sights of certain objects floating down the river that they have vowed never to take their daughters on the river again.

The evidence will also show deterioration of water quality so as to interfere with fish and aquatic life. I don't think we have to tell that to the housewives of Sioux City. I think the evidence will show that when the

Sioux City housewives buy their fish they ask the fishmonger whether the fish was caught below Sioux City. If it was, they don't want it because of the taste problem in the fish.

The evidence will show--and I purposely left this for last to give this perspective in light of the Resolution of the City of Sioux City--the deterioration of water quality which is used as a source of raw water supply by the City of Omaha. The evidence will show that the bacteria count as measured by the coliform index is above the recommended standards--or the standards recommended by the Public Health Service and the states of this region, and contain items which create taste and odor problems. This does not mean, and we will not say, that Omaha is not providing an absolutely safe water supply for its inhabitants. What the evidence will show is that this type of raw water has required the water plant operators at Omaha to install extensive and expensive equipment, exercise extraordinary surveillance.

The evidence will also show what is pretty much self-evident, that the bacteria loading of a raw water supply is in inverse ratio to the safety factor, that as the bacteria and the raw water supply go down the safety factor that the water plant operators have goes up.

And last I might point out that while we recognize that all types of water, even the worst kind of water, given enough treatment can be treated, the degradation of the quality of raw water leads also to a degradation of the quality of finished water we get. One of the Public Health Service's people phrased this very clearly, and I think the evidence will show that, in answer to the contention that a water treatment plant could treat almost any kind of water. He said, "In the writer's opinion the answer to these arguments rests in the simple fact that water consumers along the river are not obtaining the consistently palatable water supplies to which they are entitled despite the ingenious and costly methods which have been developed in an effort to combat such unpalatability. As the only major change in water treatment has been intensification of chlorination, the inference seems quite clear that this practice lies at the root of present difficulties, though doubtless aggravated by the effects of certain industrial pollution. Reduction of bacterial loads in accordance with the objectives herein recommended"--and those are Public Health Service recommendations--"would go far to obviate the necessity of heavy chlorination and thus make it possible with the improved chlorination techniques of recent years to produce even more palatable water supplies than were being delivered some 25 years ago."

And I think this is a challenge we have for the well-being of the people of this area.

MR. DAVIS: Mr. Chairman, I again object to the reading by counsel of this statement because it is in the nature of evidence, and I ask that the Board be admonished to disregard it now. I am assuming at this point, since Mr. Stein has read the statement, that he will have the author of the statement here before the Board in order to present that evidence to the Board, and if he does, of course, I will have no objection to it. But I do think that if he doesn't plan to have that gentleman here to testify that he now is not only reading evidence in what started out as an opening statement, but is using hearsay. For that reason I object to it and ask that the Board be admonished to disregard it until such time as competent and relevant proof to support that statement is put in by the gentleman in question.

MR. STEIN: May I--

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MR. STEIN: May I--

CHAIRMAN WILSON: Well, may I say, Mr. Davis, that I don't think any admonition to the Board is necessary at this time as might be required if this were a jury trial, because, as I have indicated before, the Board will take all such questions under advisement and consider their relevancy and materiality before we give any weight to them in forming our final decision, and you may have the same privileges in that respect as are being accorded to counsel for the Government.

MR. DAVIS: Then I have no objection, Mr. Chairman, if the Board will rule on them later. But I would want to state for the record now that I am assuming that since this statement has been made that that gentleman will testify here in court.

CHAIRMAN WILSON: Well, there is no occasion to pass on--

MR. DAVIS: Certainly counsel would not include in an opening statement evidence that he knows is inadmissible and he has no evidenct to prove it.

CHAIRMAN WILSON: There is no occasion to pass on that at this time.

MR. DAVIS: I understand that, sir.

CHAIRMAN WILSON: The Board will take the matter under advisement and consider its relevancy and materiality as bearing on our final decision when we reach that point.

I might say, Mr. Stein, that of course in accordance with the usual practice, in all matters of this kind it is well for counsel to confine themselves in their opening statements to what they expect to prove and perhaps you have included something that would be more in the nature of final argument than would be appropriate in connection with an opening statement. But in view of the liberality of procedure at an administrative hearing of this kind, we have been taking it subject to the qualification that I mentioned.

MR. STEIN: Thank you, Mr. Chairman. That concludes our opening statement. May I again ask the Board if I may correct my understanding, we have assumed that this was an administrative hearing where the Board would take these matters under advisement. The purpose of making the statement at this time and other statements was to clarify the issues so the Board could have the picture before it. It is our purpose, if we might, with this type of approach, perhaps eliminate a closing statement or make that very brief on the part of the Government so we could give the Board the benefit of our thinking at the beginning and they could appraise the evidence as it came in.

That concludes the opening statement for the Government, sir.

CHAIRMAN WILSON: We will take a 10-minute recess.

(RECESS)

CHAIRMAN WILSON: The hearing will be in order.

You may proceed, Mr. Stein.

MR. DAVIS: Mr. Chairman--

MR. STEIN: I should like to call Mr. Glen Hopkins as the first witness.

CHAIRMAN WILSON: Just a moment.

MR. DAVIS: Mr. Chairman, I was not aware at the start that there were going to be opening statements. I would like to point out to the Chairman that under our Iowa practice and under the practice followed in the Federal Court here the opening statements for both parties are made prior to the presentation of any evidence. I am wondering in the light of that if I might make a short opening statement of the city's position.

CHAIRMAN WILSON: You may proceed.

MR. DAVIS: Yes.

We believe here, Mr. Chairman and Members of the Hearing Board, that the evidence offered for both parties will definitely show that there is not a condition of pollution in the Missouri River which endangers the health or the welfare, as provided in the Act, of any peoples of another state or of the State of Iowa. Now, in the opening statement made to you by Mr. Stein, the factor that we believe is vital in this matter was completely overlooked. The law also provides that the question of economic feasibility shall be taken into account when considering these matters, particularly in enforcement actions. Now, I believe that the evidence offered by both parties and by the city at this hearing will show, 1, that there is no pollution existing in the Missouri River which endangers anyone's health under the contemplation of the Act. And I might say that in the previous conference that was held in this room, and I don't know whether you gentlemen have the transcripts with you or not, I see that Mr. Metzler has and he was, of course, a member of that Board, but in that hearing there were some rather hysterical and inaccurate statements made concerning the impurity of the drinking water in Omaha and of diseases resulting from it.

Now, as I understand in this opening statement today by Mr. Stein, he is saying that, after all, that isn't the only thing involved or we will not have anything on that. I say to you gentlemen that the city's proof here and the Government's own proof will prove positively that there is no such danger to the health of anyone, no impurity in their drinking water.

Now, it would seem to me in hearing this opening statement that the Government is mending its hole, to use a term which our Supreme Court seems to favor, and we are now into a position where he states that the evidence will show that recreational activities upon the river have been curtailed because of this pollution. Now, I don't believe the evidence will show that and I say in advance to you that I believe the evidence and the statute under which you are operating will show that there is no one's health endangered by that. Our evidence will show that what we are being asked to do is to spend from $7,000,000 to $12,000,000 to erect a sewage disposal system and that we are not in a position to do it and that we should not be required because of the lack of pollution endangering anyone's health, and that it would be ridiculous and extreme to expect us to do it for esoteric, as Mr. Stein says, reasons to improve the flavor of the water below us or these esthetic considerations concerning the use of the river itself by boaters, and so forth. That in essence will be our proof here and I would like to point out again to the Board that we have two factors here. Are we endangering anyone's health? Our evidence, we believe, will show that we are not. And a second factor is, is it economically feasible for this city of some 80,000 people to spend from $7,000,000 to $12,000,000 to put in a system the worth or value of which for sanitary purposes we have considerable doubt about, and we have evidence on that, in order for us to spend this money for esthetic reasons.

I appreciate very much having a chance to make this statement before we start, as I did feel that Mr. Stein said that perhaps a clarification of the issues will be helpful to us all. But we don't feel that we are here to talk about boating upon the river. We are here discussing a $7,000,000 to $12,000,000 project to protect people's health and that is the issue that the city is going to present to you.

CHAIRMAN WILSON: Very well.

You may proceed with your evidence now, Mr. Stein.

MR. STEIN: Thank you, Mr. Chairman. May we call Mr. Glen Hopkins as our first witness. Mr. Hopkins.

(Witness sworn.)

GLEN HOPKINS,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. STEIN:

Q. May we have your name and address?

A. Glen Hopkins, 2200 Federal Office Building, 911 Walnut, Kansas City, Missouri.

Q. By whom are you employed, Mr. Hopkins?

A. The United States Public Health Service.

Q. What position do you hold?

A. Regional Engineer.

Q. What are the duties of your position as they relate to water pollution control?

A. To carry out the field resonsibilities of the Surgeon General and the Secretary under the Federal Water Pollution Control Act. That includes, among other things, the administration of grant-in-aid programs, technical consultation, abatement of interstate pollution, and cooperative activities with state water pollution control agencies.

Q. In your duties have you inspected the Missouri River in this area?

A. Yes.

Q. Are you familiar with the water uses of the river in this area?

A. Yes.

MR. DAVIS: Exuse me, Mr. Stein.

MR. STEIN: Yes.

MR. DAVIS: Just a second. I am having difficulty hearing.

MR. STEIN: I am sorry.

MR. DAVIS: As you probably will of me, since I don't enunciate very well anyway. Perhaps it is the acoustics.

MR. STEIN: Perhaps I can move here.

MR. DAVIS: It will be difficult at best for both of us.

MR. STEIN: Yes. This may be better.

MR. DAVIS: All right. If you are comfortable there.

MR. STEIN: Yes.

Q. (By Mr. Stein.) Are you familiar with the waste discharge system at Sioux City, Iowa?

A. Yes.

Q. How long have you been employed by the Public Health Service, Mr. Hopkins?

A. Almost 16 years.

Q. In what capacities?

A. For the last three years as--well. As a sanitary engineer, for the last three years as Regional Engineer, for the last ten years on the Federal water pollution control program.

Q. By whom were you employed previously?

A. The Division of Health of the State of Missouri, then the Missouri State Board of Health.

Q. In what capacity did you work there?

A. On the regional and headquarters staff as a district public health engineer or assistant to the chief public health engineer on general sanitation programs, including sewage treatment.

Q. How long were you employed on that?

A. Seven years.

Q. Have you had any special education or training in this field?

A. I am a graduate engineer, civil engineering, with a Master's degree in sanitary engineering, and a second Master's degree in public health administration.

Q. Are you the official custodian of the Department of Health, Education records pertaining to pollution control of the Missouri River in the Sioux City, Iowa, area?

A. Yes.

Q. Mr. Hopkins, I direct your attention to a map which purports to be a representation, an accurate description, of the Missouri River Basin. I ask that this be marked as Government Exhibit No. 2 for purposes of inspection.

(Government's Exhibit No. 2
marked for identification.)

Q. (By Mr. Stein.) Does this map come from part of your official records?

A. Yes, it does.

Q. On the basis of your knowledge is that an accurate description of the Missouri River Basin?

A. And the development program as it relates to the main stem of the Missouri River.

Q. By whom was this map prepared?

A. It was prepared by the Corps of Engineers, Missouri River Division, in Omaha, Nebraska.

MR. STEIN: I offer this in evidence as Government Exhibit No. 2.

MR. DAVIS: No objection, Mr. Chairman.

CHAIRMAN WILSON: Received.

(Government's Exhibit No. 2
received in evidence.)

Q. (By Mr. Stein.) I call your attention to another map purporting to describe the Missouri River between Sioux City, Iowa, or Gavins Point Dam down to Omaha.

MR. STEIN: I ask that this be marked as Government Exhibit No. 3 for purposes of identification.

(Government's Exhibit No. 3
marked for identification.)

Q. (By Mr. Stein.) Is this map part of your official records, Mr. Hopkins?

A. Yes, sir.

Q. By whom was this map prepared?

A. U. S. Geological Survey.

MR. STEIN: I offer this map in evidence as Government Exhibit No. 3.

MR. DAVIS: Might I see it, Gentlemen?

MR. STEIN: Yes.

MR. DAVIS: No objection.

CHAIRMAN WILSON: Received.

(Government's Exhibit No. 3
received in evidence.)

Q. (By Mr. Stein.) Mr. Hopkins, can you give us a brief description of the Missouri River Basin with the emphasis on the river's importance to the area which it serves?

A. The Missouri River Basin encompasses over 500,000 square miles of drainage area in the United States and a part of Canada. The basin includes all or a part of 10 states. The river is a regulated river above Gavins Point through a system of Federally-constructed reservoirs. Upstream from those reservoirs the towns are rather small, rather widely separated. Several of the communities do use the river as a source of water supply, many other communities obtain their water from ground sources. Below Gavins Point Reservoir the river is a regulated stream for navigation; a system of channel stabilization works is under progress of construction from Sioux City downstream to the mouth. In this reach of the river is located the larger streams of the Missouri Basin and many of the Basin's important industries. Below Sioux City each major town depends upon the river as a source of water supply and as a means of removal and ultimate disposal of its sewage and industrial wastes. Over 3,000,000 people depend upon the Missouri River for their drinking water supply. The river is along the eastern part of Nebraska and the western part of Iowa and forms the state boundary between the two states at that point. It is increasingly being used for recreational purposes, both above Gavins Point Reservoir in the area where the dams are located and downstream from the dams where the flow is regulated and the channel now is being placed into a permanent location.

Q. Thank you. As part of your official duties are you familiar with the State-Federal program in this area to improve water quality of the Missouri River Basin?

A. Yes, sir, I work closely with the states.

Q. Would you describe that program?

A. The states have been working on a uniform state program for several years. In my official capacity I have worked with the five state water pollution control agencies of South Dakota, Iowa, Nebraska, Kansas and Missouri. As early as 1953 these five state agencies agreed that treatment of sewage and industrial wastes entering the lower river was necessary and they agreed among themselves to proceed within the framework of their own programs and legal structure, legal and administrative structure, to seek abatement of pollution at about the same time, keeping uniformity as nearly as possible. Their program was based upon a minimum of primary treatment for domestic wastes and control of industrial wastes through pretreatment, waste salvage, or waste prevention ahead of entrance to the municipal treatment plant, with industries not served by municipal plants to provide an equivalent degree of control. Wastes not amenable to treatment would be precluded from the systems and special consideration would be given to materials that caused operational difficulties in water plants.

Q. Are you familiar with Section 2 of the Federal Water Pollution Control Act which directs the Surgeon General to develop comprehensive programs?

A. Yes.

Q. Under that section of the Federal Act was, in fact, a comprehensive program developed for this stretch of the Missouri River Basin?

A. Yes, a comprehensive program was adopted by the Surgeon General in 1953. It was identified as Water Pollution Series No. 56. The program was adopted by the Surgeon General as prepared and agreed to and otherwise developed by the individual state water pollution control agencies in the Missouri Basin.

Q. May I have a copy of that program?

MR. STEIN: I ask that this comprehensive program be marked as Government Exhibit No. 4 for purposes of identification.

MR. DAVIS: Did you just ask to have it marked?

MR. STEIN: Yes, for purposes of identification.

(Government's Exhibit No. 4
marked for identification.)

MR. STEIN: Without objection I offer this as Government Exhibit No. 4.

MR. DAVIS: That is objected to, Mr. Chairman, on the grounds that no proper foundation has been laid for the introduction of this exhibit. It is incompetent, irrelevant and immaterial, and I wish my objection to go, as far as compentency is concerned, to the witness as well as his testimony. I don't believe he has shown that he had anything to do with the preparation of that report. Also it would seem to me, Mr. Chairman, that it calls for and is using hearsay evidence.

CHAIRMAN WILSON: It will be received subject to the objection with the understanding previously noted, that the Commission will reserve its ruling as to irrelevancy and materiality.

(Government's Exhibit No. 4
received in evidence.)

Q. (By Mr. Stein.) In this part of your Federal-State activities which you do as part of your official duties with the Public Health Service, are the activities of pollution discharges or waste discharges from Sioux City included in these activities--

A. Yes, sir.

Q. --surveillance of those? Can you give us one, let me say, under the Federal Act?

MR. STEIN: And I ask the Board under the regulations to take judicial notice of the provisions of the Federal Water Pollution Control Act, one which provides in Section 2 of the Act that the Surgeon General shall prepare comprehensive programs for the abatement of water pollution control in cooperation with Federal and State agencies concerned and municipal, industrial and other interests. Secondly I ask the Board to take judicial notice of Section 8 of the Federal Act which provides for abatement of pollution of interstate waters and I ask the Board to--call the Board's attention to Section 4 (B) of the Federal Water Pollution Control Act which provides that the Surgeon General, at the request of any State Water Pollution Control Agency, may provide a study of the problem with a view toward recommending a solution of that problem.

Q. (By Mr. Stein.) Under the authority of Sections 2, 4(B) and 8 of the Federal Water Pollution Control Act, and in carrying out of your duties, have you been personally involved in the steps concerning pollution abatement of Sioux City?

A. Yes.

Q. Can you, based on the records of the Public Health Service which you have as part of your official records and personal participation, outline the activities of the Public Health Service in connection with the states in this regard?

A. As related to the matter at Sioux City?

Q. Yes, sir.

A. The first activity of the Public Health Service in the Missouri Basin program under Public Law 845 led to our suggestion, the Public Health Service's suggestion, to the five state water pollution control agencies that they study and develop a report of the extent of pollution of the Missouri River and the degree of treatment that might be needed. And as a part of my official responsibilities, on August 24, 1949, I requested a meeting of the five state water pollution control agencies to investigate and study pollution of the lower Missouri River.

MR. DAVIS: Excuse me a second, Mr. Hopkins. I may have missed 2 and 3. Where are you now?

A. Sir?

MR. DAVIS: I didn't hear the second thing that was done in this history that you were repeating.

A. I am still on the first.

MR. DAVIS: Oh, I beg your pardon. I am still with you, then.

A. On January 17, 1950, the last of the state signatures agreeing to a plan and providing for the study of the Missouri River was secured and the study was conducted during 1950. A report of the study was issued in 1952 as Water Pollution Series No. 47. A conclusion of the report was that the state agencies would proceed with programs for waste treatment for each Missouri River city and industry. The second step in the chain of events was pursuant to responsibilities of the Surgeon General under Public Law 845, which provides that he shall prepare or adopt comprehensive programs for control of pollution in the major river basins of the country. Through Water Pollution Service No. 56, previously mentioned, the Surgeon General adopted this document as his comprehensive program as developed by the state water pollution control agencies of the Missouri Basin. This report listed the waste treatment needs for Missouri River cities and industries and termed pollution of the interstate reach of the Missouri River as interstate pollution within the meaning of the Federal Act. To implement that program as a part of my official duties I called a meeting of the state sanitary engineers of these five states, which was held in Omaha, Nebraska, on September 15, 1953, for them to consider a uniform program to apply to the Missouri River below Gavins Point Dam. The states at that time agreed that a minimum of primary treatment with appropriate control of industrial wastes should proceed uniformly throughout the lower Missouri River. Each state was to contact its municipalities, outline the program to them, and secure their cooperation if at all possible. As a part of my duties I ascertained from the Iowa Department of Health that on May 28, 1954, Mr. Houser, as a representative of the Iowa Department of Health, advised me that he had met with the City of Sioux City and that in his opinion the city recognized the problem and intended to proceed with corrective measures.

MR. DAVIS: That statement is objected to as involving hearsay, also that it is irrelevant and immaterial, and move to strike it.

CHAIRMAN WILSON: Received subject to the objection and the reservation of ruling as previously noted.

A. Under date of February 26, 1954, the Chief of the Division of Water Pollution Control, Public Health Service, in Washington, D. C., transmitted a letter and report of interstate pollution and suggested state action to abate that pollution. That was an official communication between the Chief of the Public

Health Service Division of Water Pollution Control directed to the Iowa Department of Health on February 26th.

Q. (By Mr. Samson.) Of what year, Mr. Hopkins?

A. 1954. As another step, on May 5, 1954, the Missouri Basin Inter-Agency Committee, of which I am a representative in connection with my official duties, endorsed the comprehensive program for the Missouri Basin as adopted by the Surgeon General, and this is a quote from their resolution, as an integral and essential part of the over-all program of resource development for the Missouri Basin.

On October 7, 1954, the State Department of Health of Iowa conducted a hearing at Des Moines under state law in the matter of the pollution of the Floyd River, Perry Creek, and the Missouri River at or near Sioux City. Following the October 7th hearing a resolution of the City Council dated January 7, 1955, a certified copy of which was provided the Public Health Service, committed the city to an abatement program and on that same date the City of Sioux City advanced a motion for continuance of action on the hearing, which request was directed to the Iowa Department of Health.

As the next step, on October 30, 1957, the Director of Public Health Engineering of the Iowa Department of Health advised that the City Manager of Sioux City had requested him to meet with the City Council to discuss the State and Federal program for abatement of pollution in the Missouri River and in his letter pointed out that the scheduled date for the award of contracts as set up in the original schedule was very near at hand. Mr. Houser advised me that he and members of his staff were unable to attend this meeting, that he considered it imperative that the meeting be held, and requested me as the Regional Engineer of the Public Health Service to, and I quote from his letter, "arrange to attend and explain the situation as to the need for proceeding in accordance with the schedule." Based upon this request, I met with the City Manager and City Council on November 1, 1957, and on November 4, 1957, the City Manager provided the State Health Department and the Public Health Service a progress report on actions taken by the city at that time, up to that time.

The next step was on March 7, 1958. The Director of the Division of Public Health Engineering of the Iowa Department of Health and myself as Regional Engineer met with the new City Manager and the new City Council of Sioux City to review progress and to ascertain, if possible, current plans of the city for abating the pollution. At this conference it was apparent that the new City Council had abandoned the commitment of the previous council and during the conference the council clearly inferred that it did not intend to provide sewage treatment until forced to do so.

The next step was on March 31, 1958. Through an official Resolution of the Council No. 6975, a copy of which was provided me, the City Council questioned the need for sewage treatment, advanced a program for further study and construction limited to the area influenced by the interstate highway, and advised, and a quote from the resolution, "that the steps set forth above constitute the limit of the program of the City of Sioux City at the present time, and that in the event the Federal Government authorities believe that the Missouri River is being polluted unreasonably at Omaha as a result of input at Sioux City, then the City of Sioux City shall proceed with all haste to officially demand a court decision."

In a communication to the Surgeon General of the Public Health Service, dated April 18, 1958, the Commissioner of Public Health of Iowa transmitted a copy of Resolution No. 6975 as previously adopted by the council of Sioux City, pointing out that the final paragraph of the resolution, and I quote from the letter, "provides that a court decision will be required to bring about additional progress in Sioux City." To prepare for this eventuality, and to provide opportunity for the five state health departments cooperating in the uniform state program to review the current proposal of Sioux City with the Public Health Service, the Commissioner of Health of Iowa requested that the Surgeon General conduct a conference under Public Law 660 for that portion of the Missouri River--

Q. (By Mr. Stein.) Mr. Hopkins, is this request in writing?

A. Yes.

Q. Do you have a copy of that letter as official custodian of the records?

A. I believe so.

MR. STEIN: I ask that this be marked as Government Exhibit No. 5 for purposes of identification.

(Government's Exhibit No. 5
marked for identification.)

MR. STEIN: Without objection I offer this as Government Exhibit No. 5.

MR. DAVIS: What was your statement?

MR. STEIN: Without objection I offer this as Government Exhibit No. 5.

CHAIRMAN WILSON: Was there objection, Mr. Davis?

MR. DAVIS: No, sir.

CHAIRMAN WILSON: O. K., it will be received.

(Government's Exhibit No. 5
received in evidence.)

Q. (By Mr. Stein.) In response to this letter did the Surgeon General call a conference?

A. Yes. Letters were sent to each of the state water pollution control agencies concerned under date of May 2. They were sent by registered mail with return receipt requested and return receipts are on file with copies of those letters.

Q. Do you have copies of those as part of your official records, Mr. Hopkins?

A. Yes.

MR. STEIN: I ask that this be considered as one exhibit, marked as Government Exhibit No. 6, with the letter to Iowa being marked as 6-A, to Kansas 6-B, Missouri 6-C, Nebraska 6-D, and South Dakota 6-E.

(Government's Exhibit No. 6,
including 6-A to 6-E, inclusive,
marked for identification.)

MR. STEIN: Without objection I offer these as Government's Exhibit No. 6.

CHAIRMAN WILSON: This group of exhibits is offered together as Exhibit 6?

MR. STEIN: Yes, sir.

CHAIRMAN WILSON: Dated May 2, 1958.

There being no objection, they will be received.

(Government's Exhibit No. 6
received in evidence.)

Q. (By Mr. Stein.) Was this conference in fact held?

A. Yes, it was, on July 24, 1958.

Q. Did conferees representing all the states invited attend the conference?

A. Each and every state invited attended.

Q. Was a transcript of this conference made?

A. Yes.

Q. Verbatim transcript?

A. Yes.

Q. Do you have a copy of that--

CHAIRMAN WILSON: What was that date of the conference? What year was that held?

A. July 24, 1958. This is the report, transcript.

Q. (By Mr. Stein.) You have a verbatim transcript of that conference?

A. Yes, sir.

Q. Is that part of your official record?

A. Yes.

Q. May I have that?

MR. STEIN: I ask that the transcript of the conference dated July 24, 1958, be marked as Government Exhibit No. 7 for purposes of identification.

(Government's Exhibit No. 7
marked for identification.)

MR. DAVIS: That is objected to, Mr. Chairman-- excuse me. You haven't offered it, have you?

MR. STEIN: No.

MR. DAVIS: Go ahead.

MR. STEIN: I offer this in evidence as Government's Exhibit No. 7.

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial, particularly as it may be considered by this Board as evidence of the issues here. I have no objection to stipulating that the conference was held, but transcript of evidence I feel is incompetent in here, Mr. Chairman.

CHAIRMAN WILSON: Well, so far as it may have any evidentiary purpose it will be received, subject to the objection and the reservation of ruling as to competency and relevancy and materiality.

Proceed, subject to the objection.

(Government's Exhibit No. 7
received in evidence.)

Q. (By Mr. Stein.) As part of your official duties was an engineering report dealing with the Sioux City sewage disposal system prepared by the city's engineers ever submitted to your office?

A. Yes, a copy of that report was made available from the city to the state water pollution control agency and from the state water pollution control agency to the offices of the Public Health Service.

Q. Would you identify that report?

A. It was Exhibit No. 2 at the July 24th conference. It is entitled "The Preliminary Report Sewage Treatment Facilities for Sioux City, Iowa, 1957" prepared by engineering consultants Buell and Winter, Sioux City, Iowa, Howard R. Green and Company, Cedar Rapids, Iowa.

Q. May I have that?

MR. STEIN: I ask that this report be marked as Government's Exhibit No. 8 for purposes of identification.

(Government's Exhibit No. 8
marked for identification.)

MR. STEIN: I would like to offer this as Government Exhibit No. 8.

CHAIRMAN WILSON: No objection. Received.

(Government's Exhibit No. 8
received in evidence.)

Q. (By Mr. Stein.) Do you have as part of your official records, Mr. Hopkins, a summary of the conference which is required to be prepared by law?

A. Yes, I do have.

Q. Were such summaries sent to the states?

A. The summary of the conference was transmitted to each of the states participating in the conference. It was sent by Registered mail with Return Receipt requested and I have here file copies of the letters of transmittal and appended receipts.

MR. STEIN: Would you hand those to me?

I ask that the summary of conference be marked for purposes of identification as Government Exhibit No. 9 and treated as one exhibit, letters to Iowa marked as 9-A, Kansas 9-B, Missouri 9-C, Nebraska 9-D, South Dakota 9-E, and all these copies be deemed to have the summary of the conference attached thereto.

(Government's Exhibit 9, including 9-A to 9-E, inclusive, marked for identification.)

MR. DAVIS: Mr. Stein, do I understand Exhibit 7 you have described as a verbatim report of the conference?

MR. STEIN: That is correct.

MR. DAVIS: That also had the conclusions of the conference in it, it was the bound volume, is that correct?

MR. STEIN: No. 7 is a verbatim report of the conference.

MR. DAVIS: And its conclusions?

MR. STEIN: Well, do you want us to discuss this now?

MR. DAVIS: No, I am just trying to straighten out here. There is some confusion.

MR. STEIN: O.K. May I explain it then? Under the law the Surgeon General is required to prepare a summary of the conference at its conclusion. Now, at the conference what we attempt to do is have a preliminary summary made on the spot by the chairman of the conference to see if we can get agreement as far as possible from the conferees. However, the official conclusions and summary are made by the Surgeon General, since he is the only one authorized under law to do so.

MR. DAVIS: Now, which exhibit contains the Surgeon General's official conclusion by numbers?

MR. STEIN: Now, here, the Surgeon General prepares the summary. The conclusions are the conclusions of the conferees. Now, the official conclusions of the conferees are contained in Exhibit No. 9.

MR. DAVIS: Oh.

CHAIRMAN WILSON: Do we understand, Mr. Stein, that Exhibit 9 embraces conclusions based on the verbatim evidence shown in Exhibit 7?

MR. STEIN: That is correct, sir.

MR. DAVIS: May I see 7 and 9 then, Mr. Stein?

MR. STEIN: Surely.

I offer these in evidence as Government's Exhibit No. 9.

(Government's Exhibit No. 9 received in evidence.)

CHAIRMAN WILSON: Proceed.

Q. (By Mr. Stein.) As a conclusion of the conferees on interference of water uses did the conferees representing the five official state water pollution control agencies, of Iowa, Kansas, Missouri, Nebraska, South Dakota, and the Public Health Service limit those interferences to a possible health hazard or an interference with the water supply at the Omaha intake?

A. No--

MR. DAVIS: That is calling--

A. --it is not so limited.

MR. DAVIS: That is objected to as calling for the opinion and conclusion of this witness and is not the best evidence and is not material in any manner relevant in this matter.

CHAIRMAN WILSON: Miss Reporter, will you read that question again, please?

(Question read.)

MR. SAMSON: What is the objection?

(Objection read.)

MR. DAVIS: I would like to change my objection to read nor is it relevant in this matter and for the further reason that it is calling for hearsay testimony.

CHAIRMAN WILSON: Well, as I understand that question, it is merely a preliminary question and did not call for a statement of the actual conclusion expressed, and for that reason the objection will be overruled.

MR. DAVIS: May I ask Mrs. Rankin a question: Did you catch his answer?

THE REPORTER: Yes, I did.

MR. DAVIS: May I hear his answer?

(Answer read as follows: "No, it is not so limited.")

MR. DAVIS: I state to the Chairman that the witness has answered the question, "No, it was not so limited", he has answered it directly, and renew my objection to the question and move to strike the answer for all the reasons urged to the objection.

CHAIRMAN WILSON: The objection will be overruled.

Q. (By Mr. Stein.) Mr. Hopkins, were you a conferee at the conference held in Sioux City, Iowa, on July 24, 1958, dealing with the matter of pollution of the interstate waters of the Missouri River from Gavins Point Dam to Omaha held under Section 8 of the Federal Water Pollution Control Act and called by the Surgeon General of the United States?

A. Yes, I was one of the conferees.

Q. Who did you represent, Mr. Hopkins?

A. The Public Health Service.

Q. Did you participate in the conference?

A. Yes.

Q. Did you participate in the formulation of the conclusions and recommendations of the conferees?

A. I did.

Q. Would you read the conclusions and recommendations of the conferees?

MR. DAVIS: That is objected to as irrelevant in this matter to the issue that this Board is deciding, also because it is calling for hearsay testimony.

CHAIRMAN WILSON: Were those conclusions expressed in writing?

MR. STEIN: Yes, sir.

A. Yes, sir.

MR. EDELMAN: If I might, are you referring to Exhibit 9, Government Exhibit 9, Mr. Stein?

MR. STEIN: Yes.

MR. EDELMAN: That has already been put in evidence and as I understand the question he is asking the witness to read from the exhibit.

MR. STEIN: From the exhibit which has not been objected to.

CHAIRMAN WILSON: Were these conclusions expressed in the exhibit that has already been received?

MR. STEIN: Yes, sir. We are just asking the witness to read from an exhibit which was introduced and accepted without objection.

CHAIRMAN WILSON: Is there any further objection to the reading from this exhibit, Mr. Davis?

MR. DAVIS: No, except it is not the best evidence. If you want to take it in this manner, why, go ahead.

CHAIRMAN WILSON: As far as its evidentiary value is concerned it will be received subject to any objection that you might wish to make.

MR. DAVIS: I misunderstood, Mr. Chairman. I thought he was asking the way that they reached it.

CHAIRMAN WILSON: Well, with the understanding that he is simply reading from the exhibit, it will be received.

MR. STEIN: Just reading from the exhibit.

Q. (By Mr. Stein.) Mr. Hopkins, will you proceed?

A. "Conclusions and Recommendation No. 1. That pollution of interstate waters subject to abatement under the Federal Water Pollution Control Act is occurring in the Missouri River caused by discharges from municipalities and industries between Gavins Point Dam, South Dakota, and Omaha, Nebraska. Sewage and industrial wastes from Yankton, Vermillion, and Elk Point, South Dakota, Sioux City, Iowa, Blair, South Sioux City, Dakota City, and Ponka, Nebraska, and associated industries are finding their way into the waters of the Missouri River, an interstate water as defined by the Federal Act. Such discharges cause pollution of the Missouri River so as to endanger the health and welfare of persons in states other than that in which the discharges originate.

"2. That the major source of such pollution is Sioux City, Iowa, and associated industries.

"3. That the effects of such pollution are: (1) deterioration of water quality for public water supply at Omaha, Nebraska, with associated enhancement of possible disease transmission; (2) increased concentrations of coliform and other organisms associated with human diseases which constitute a health hazard to commercial and recreational users of the river; (3) deterioration of water quality so as to interfere with navigation and to create a health hazard to persons engaged in navigation, river dredging, and other river improvement activities; (4) creation of sight and odor nuisances; and (5) deterioration of water quality so as to create conditions inimical to fish and aquatic life.

"4. That the measures presently used for the disposal of sewage and industrial wastes from Sioux City, Yankton and Vermillion, South Dakota, Sioux City, Iowa, South Sioux City, Dakota City, and Ponka, Nebraska, and associated industries, are not adequate to secure abatement of the pollution of the interstate waters of the Missouri River.

"5. That the delays encountered in the abatement of such pollution are due to the lack of installation of adequate waste treatment facilities or other methods of control of pollution by the municipalities and industries concerned.

"6. That the aforementioned cities and industries which have not already done so provide adequate treatment for wastes prior to their discharge."

The others deal pretty much with the schedule. Do you wish those?

Q. Not unless -- Mr. Hopkins, did the conferees establish a time schedule for remedial action and does the official summary of the conference so show?

A. Yes, it does.

Q. Mr. Hopkins, I call your attention to Exhibit 9-A, which has been introduced into evidence, and that is a letter of the Surgeon General to Dr. Zimmerer dated September 5, 1958, and I would like to ask you to read the last sentence in that letter.

A. "It, therefore, is recommended that your department take appropriate steps under its state water pollution control program to insure that contributors to such pollution within your jurisdiction take measures to meet the time schedule for remedial action unanimously agreed on by the conferees."

Q. Thank you. Was a reply from Iowa sent to this letter recommending remedial action?

A. Yes.

Q. Do you have that reply as part of your official files?

A. Yes, sir.

Q. Would you hand that to me?

MR. STEIN: I ask that this letter be marked for purposes of identification as Government Exhibit No. 10. The date on this one is October 31, 1958.

(Government's Exhibit No. 10 marked for identification.)

MR. STEIN: I offer this in evidence as Government Exhibit No. 10.

CHAIRMAN WILSON: Any objection?

MR. DAVIS: No objection, Your Honor.

CHAIRMAN WILSON: Received.

(Government's Exhibit No. 10 received in evidence.)

Q. (By Mr. Stein.) Mr. Hopkins, I ask you to read this letter in full, if you may.

A. This is a letter from the Iowa State Department of Health dated October 31, 1958, addressed to L. E. Burney, M. D. Surgeon General, United States Public Health Service, Washington 25, D. C.

"Dear Dr. Burney: This is a belated reply to your letter of September 5, 1958, with which was enclosed a summary report of the Conference held at Sioux City, Iowa, on July 24, on the matter of interstate pollution of the Missouri River. It was necessary to delay this reply pending several conferences with our legal counsel.

"In response to your recommendation that proceedings be instituted under the Statutes of Iowa, please be advised that such proceedings were instituted in 1954 and remain pending. It further appears they may continue to pend for some time to come. We, therefore, recommend that you proceed with the appointment of the Hearing Board provided by the Federal Water Pollution Control Act to the end that your office may, upon the findings of such board, cause the Attorney General of the United States to institute appropriate proceedings in Federal Court to abate the condition.

"In the meantime, please be assured of our cooperation. Action on applications for permits to construct additional collection facilities which might tend to intensify such pollution condition as may be found to exist has been withheld pending completion of your proceedings as is evidenced by the enclosed copy of a letter recently directed from this office to the counsel for Sioux City.

"For the Commissioner. Very truly yours, (signed) P. J. Houser, Director Division of Public Health Engineering."

Q. Thank you, Mr. Hopkins. As part of your official duties and as a commissioned officer of the Public Health Service, are you required to keep advised of whether Sioux City, Iowa, and the industries located therein took action to comply with the schedule recommended by the conferees?

A. Yes, that is a part of my official responsibilities.

Q. To your knowledge has any such action been taken?

A. Not to abate pollution, no, sir.

Q. What did you do to ascertain whether or not action was taken?

A. We reviewed the matter with the Iowa State Health Department and have observed the waterfront and sewer outfalls.

Q. You have personally been up there, observed the waterfront and sewer outfalls?

A. Yes.

Q. Do you have as part of your official records a map representing the waste outlets of Sioux City and the industries therein?

A. Yes, I have a map plate and also an aerial photograph.

MR. STEIN: We ask that this engineer's map of the sewage facilities, City of Sioux City, dated 1957, be marked Government's Exhibit No. 11 for purposes of inspection.

(Government's Exhibit No. 11
marked for identification.)

Q. (By Mr. Stein.) Is this map part of your official records?

A. Yes, sir.

Q. Where did you get this map?

A. From the consulting engineers that prepared the map.

MR. STEIN: Did you want to inspect the map?

MR. DAVIS: Mr. Chairman, I don't know if the court's clock is up to date or ahead. I have 18 minutes until 12. I would like to check this exhibit for a few minutes with our engineers who prepared it. It occurred to me that rather than hold up the whole Board you might want to start your luncheon break at this time and when we reconvene I can make my record on the exhibit.

CHAIRMAN WILSON: Well, Mr. Stein, of course we want to make use of all the time possible. Could you go ahead with something else and give counsel an opportunity to examine that map during the noon recess?

MR. STEIN: Well, we were going to go on from that to our next point. May I suggest that we may want to put on this aerial photograph and an exhibit too. Now, this is the last point we intend to cover with Mr. Hopkins, Mr. Chairman. We would have to get into another witness. That is a description of the Sioux City outfalls. And we would be perfectly willing to defer this portion of Mr. Hopkins' testimony and go on with another witness if that is what you wish to have.

MR. DAVIS: The city has no objection, Mr. Chairman, to the admission of Exhibit 11.

CHAIRMAN WILSON: Received.

MR. DAVIS: It being a map with certain--rather with two tables and one letter stapled to it.

CHAIRMAN WILSON: Are those attachments included in the offer?

MR. STEIN: Yes, they are, without objection.

MR. DAVIS: That is why I wanted to look at it, to see what they were. There is no objection.

(Government's Exhibit No. 11
received in evidence.)

Q. (By Mr. Stein.) Do you have as part of your official records an aerial photograph of the Sioux City waterfront?

A. Three sets of photographs which have been pieced together.

Q. Do these come from your official records?

A. Yes, they do.

Q. By whom were these photographs made?

A. The United States Department of Agriculture.

MR. STEIN: I ask that these three photographs be considered as a single exhibit and marked as Government Exhibit No. 12 for purposes of identification. All photographs were taken August 10, 1955. The piece marked BKW-3N-161 to be considered as Government Exhibit 12-A, the part marked BKV-3N-160 to be considered as Government Exhibit 12-B, and the part marked BKV-3N-158 to be considered as Government Exhibit 12-C.

(Government's Exhibit No. 12,
including 12-A to 12-C, inclusive,
marked for identification.)

MR. STEIN: We offer these maps in evidence as Government's Exhibit No. 12.

CHAIRMAN WILSON: Any objection?

MR. DAVIS: No objection.

CHAIRMAN WILSON: Proceed.

(Government's Exhibit No. 12
received in evidence.)

Q. (By Mr. Stein.) Mr. Hopkins, will be briefly indicate the type of waste disposal that is now occurring at Sioux City and the conditions caused by them? Before you do that, let me ask you another question or two. Are you familiar personally by inspection with this area?

A. Yes.

Q. Are these pictures an accurate representation of the Sioux City waterfront as it appears today?

A. As accurate as can be detected by photography, yes.

Q. Would you go ahead and explain, describe that?

A. I would first like to --

MR. DAVIS: I am sorry, I didn't hear the question.

MR. STEIN: Pardon me. I asked Mr. Hopkins in his opinion, based upon his inspections, whether this picture was an accurate--

MR. DAVIS: Oh, yes, I heard that. But now you are asking him to go ahead and explain what?

MR. STEIN: This was a previous question. We had asked him if he could briefly describe the method and the type of waste disposal in the sewage outlets at Sioux City and the conditions caused by them based on his visual observation.

MR. DAVIS: That question is objected to, Mr. Chairman, because it is in two parts. I don't object to him testifying to the first part of it, that is how they are operating. The effects of it, if the Chairman please, is the whole issue before this conference. I object to the question as being improper in form.

MR. STEIN: May I--

CHAIRMAN WILSON: Well, I think this witness has established his own qualifications as an engineer and so far as he confines himself to his professional conclusions from what he saw, the objection is overruled.

MR. STEIN: We are just asking for visual evidence here in order to save time.

CHAIRMAN WILSON: Go ahead and answer the question.

Q. (By Mr. Stein.) Mr. Hopkins, would you proceed.

A. I would first like to refer to this reproduction of Plate 1 of the Consulting Engineers Preliminary Report for Sioux City.

MR. KURYLO: What exhibit is it?

MR. EDELMAN: 11.

A. It is Exhibit 11.

CHAIRMAN WILSON: Just a minute, some of the Members of the Board can't see this very well. I wonder if that could be turned around.

A. This is a reproduction of Plate 1 of the Consulting Engineer s report which assigns numbers and names to the various sewer outfalls in Sioux City.

Q. (By Chairman Wilson.) Just a minute, Mr. Hopkins. To which exhibit now by number are you pointing?

A. This is Exhibit 11.

CHAIRMAN WILSON: Go ahead.

A. The sewer outfalls are given numbers and names along the Missouri River and up the Floyd River (indicating). Plate 2 of the report listed the name of each outlet and certain characters of the flow, certain characteristics of the flow from each sewer.

Q. (By Chairman Wilson.) You are now pointing to a printed or typewritten attachment at the upper left-hand corner of the city map, Exhibit 11?

A. Yes. This is a reproduction of Plate 2 of the Consulting Engineer's report, a Varifax reproduction. This appendage in the center of the map is a Varifax reproduction of Plate 5 of the Consulting Engineer's report which gives certain information on the industrial wastes of the area.

CHAIRMAN WILSON: What was the Exhibit number of that report? That is already in evidence.

MR. STEIN: Yes, it is.

MR. EDELMAN: It is Exhibit 8, Mr. Chairman.

MR. STEIN: Exhibit No. 8 is the Engineer's report, sir.

A. Based upon the numbers and names from this source we have transposed the information to the approximate location as would be shown on this aerial photograph.

Q. (By Chairman Wilson.) You are now pointing to Exhibit 12?

A. Yes, sir.

SECRETARY AYERS: 12-A.

A. This is 12-A

MR. STEIN: They are all considered as 12 together.

THE WITNESS: Can the Board see this?

CHAIRMAN WILSON: Yes.

A. The sewer outlet most upstream at Sioux City is discharged to the Big Sioux River slightly above the mouth of the Big Sioux. The actual location is believed to be off the map, but this shows the general location of what is called the Riverside waste outlet.

The next outlet downstream, No. 2 on the other plate, is called the Fish Camp outlet. On down at the foot of Isabella Street is a third outlet and these outlets each discharge what is characterized as domestic sewage. There is an absence of significant amounts of industrial wastes in these three outlets. As we move downstream to Perry Creek (indicating), Pierce Street (indicating), Nebraska Street (indicating), Virginia Street (indicating), and the Court Street (indicating) outlets the nature of the sewage, the characteristics of the sewage, reflects the commercial and other establishments in the areas drained by these respective sewers. There is another sewer outlet termed 8-A characterized as the foot of Howard Street (indicating), there is another outlet down below the junction of the Floyd that is called 3rd to 5th (indicating), that area. There is one domestic outlet to the Floyd River itself (indicating). Then above the paved section of the Floyd River, which is not shown on this map, there are some numerous domestic sewage outfalls--I will go back to this chart for it--there are outlets all along the Floyd River (indicating) until you get up to, well, identified as the area in the location of Trinity College. There are several such outlets to the Floyd River, each primarily reflecting domestic sewage, each individual outlet a relatively small amount of sewage, but in total a significant amount of sewage. The industries having separate outlets to the Floyd or Missouri Rivers are generally located in this area (indicating) of the map. This is the Floyd River (indicating), the paved section. This (indicating) is the bank of the Missouri River. And the livestock related industries are concentrated in that area (indicating). Those industries discharging their wastes to the Floyd River include Swift and Company, the Smith Packing Company, Raskin Packing Company, Armour and Company, Sioux City Dressed Beef, Inc., and the Sioux City Stockyards. Then along just above the junction there is additional industrial waste discharged from the Sioux City Dressed Pork, Inc., and the Meyer Packing Houses. I emphasize that these particular industries are approximate locations intended only to acquaint the Board with the general area of the specific industry and where its wastes are discharged to.

Q. (By Mr. Stein.) Mr. Hopkins, on the basis of your experience are you familiar with the--can you identify domestic sewage by taste--by odor and appearance?

A. Domestic sewage has a characteristic appearance. It contains certain solid materials that unquestionably relate it to domestic sewage. I think that the answer would be yes. I can give the--describe the appearance of domestic sewage.

Q. In your experience and your personal inspections was domestic sewage coming out of the sewer outfalls other than the ones on the Floyd River?

A. From each of these outfalls along the waterfront of the Missouri River down to here (indicating) and--

Q. (By Mr. Kurylo.) At what point are you stopping now? Down to where?

A. Down to the general industrial area that starts just upstream of the Floyd River. All of these--

Q. (By Chairman Wilson.) Just a minute, Mr. Hopkins. You have now indicated the waterfront from the extreme left-hand side of that map to a point over at the right or easterly side a few city blocks distance, I would say, above the outlet of the Floyd River?

A. Yes. An extension of Howard Street.

Q. Now, I don't think you have told us, but I assume that we may take official notice that the Missouri River at that point flows from west to east?

A. Yes, sir, downstream.

Q. (By Mr. Stein.) What is that bit of land on the opposite side of the Missouri River opposite Sioux City?

A. This over in here (indicating)?

Q. Yes.

A. That is South Sioux City, Nebraska.

Q. Are you also familiar with industrial wastes?

A. Yes. From certain industries, the type that we encounter along the Missouri River, yes.

Q. In your examination of the outfalls going into the Floyd River and up to the foot of Howard Street, were those discharges characteristic of industrial wastes?

A. Without question, along this stretch of the River (indicating), of the Floyd River, and the area of the banks of the Missouri River just upstream from the Floyd River (indicating). Without any question they contain materials, blood, grease and other components, that clearly identify them with the industries involved.

Q. Based on your personal observations did you ever see any accumulation of this material discharged near the waterfront?

A. Yes.

Q. If so, would you mind pointing to those places and identifying it?

MR. DAVIS: That is objected to--

CHAIRMAN WILSON: Mr.--

MR. DAVIS: --unless a time is fixed.

CHAIRMAN WILSON: I think we will take our noon recess now. That clock appears to be a little slow. The Members of the Board agree with counsel that that clock is about five minutes slow, so we will now take a recess until 1:30 this afternoon.

- - -

WHEREUPON, the hearing stood at noon recess until the hour of 1:30 o'clock in the afternoon, at which time the following further proceedings were had and entered of record, to wit:

- - -

AFTERNOON SESSION, MONDAY, MARCH 23, 1959

CHAIRMAN WILSON: You may proceed, Mr. Stein.

MR. STEIN: May we recall Mr. Hopkins to the stand to resume.

GLEN HOPKINS,
resumed the stand and testified further as follows:

DIRECT EXAMINATION (Cont'd.)

BY MR. STEIN:

Q. Mr. Hopkins, have you ever personally inspected the Sioux City waterfront and the area depicted in Government's Exhibit No. 12?

A. Yes.

Q. When was the last time you were there?

A. On January 13th of this year.

Q. In 1959?

A. Yes, sir.

Q. Could you show us where you were personally on that occasion and what you saw, and describe what you saw?

A. I was along the lower reaches of the Floyd River (indicating). I observed the wastes coming directly to the Floyd containing residue from industrial operations. I saw grease accumulated along the Floyd River in large quantities. I saw discoloration obviously from blood. I observed bits of fat and tissue that unquestionably came from industrial operations relating to this area. Along the edge of the Missouri River upstream from the Floyd I saw large accumulations of wastes obviously septic in condition, floating accumulations of solid material, and in the upper portion also evidence of blood.

Q. Did you have occasion on that day to examine any of the domestic sewer outlets?

A. Yes. I examined the Virginia (indicating), Nebraska (indicating), Pierce Street outlets, and the Perry Creek (indicating) outlet.

Q. Would you point to the one furthest to the right, Mr. Hopkins? Is that the Virginia Street?

A. Virginia and Court Streets right here (indicating). This (indicating) is Virginia, this (indicating) is Court.

Q. Would you indicate the sewer outlet at Virginia Street, Mr. Hopkins?

A. Right here (indicating).

CHAIRMAN WILSON: Just designate that point by street or otherwise. You have to remember, Mr. Hopkins, that when you say "right there" it doesn't mean anything with reference to the record.

A. Thank you, Mr. Chairman. The sewer outlet at the extension of Virginia Street.

Q. (By Mr. Stein.) Where Virginia Street is extended and meeting the Missouri River.

A. Yes.

Q. That indentation where Virginia Street is extended meeting the Missouri River, is that a stream flowing into the Missouri, Mr. Hopkins?

A. In my opinion it is the sewer outlet with some minor drainage to the watershed. Principally it is domestic sewage.

Q. When you examined that sewer outlet on January 13, 1959, would you describe the contents of that sewer outlet?

A. It was a grayish liquid; from the steam, the vapors, that was coming from it it was obvious that it was a much warmer temperature than the air or stream water. There were bits of feces, other refuse from the households that were readily apparent.

MR. STEIN: Thank you, Mr. Hopkins.

We have no further question of Mr. Hopkins at this time, sir. However, we would like to reserve the right to recall Mr. Hopkins to the stand at the conclusion of the main part of the Government's case again as our concluding witness for the main part of the Government's case.

CHAIRMAN WILSON: That privilege will be permitted to any party.

MR. STEIN: Thank you.

CHAIRMAN WILSON: Is there any cross-examination, Mr. Davis?

MR. DAVIS: Just a minute, Mr. Chairman.

Mr. Chairman, with the understanding that the Public Health Service is going to recall Mr. Hopkins and that I would be allowed to cross-examine him at that time, I have no cross-examination now.

CHAIRMAN WILSON: That will be understood.

Is there any cross-examination by other parties? Have any members of the Board any questions to ask Mr. Hopkins?

Q. (By Mr. Samson.) I would like to ask you a question, Mr. Hopkins. Was there any smell or odor of any kind evident out there on that waterfront when you were out there in January of 1959? If there was, we would like to know the nature of it.

A. At the domestic outlets that I visited there was the odor characteristic of domestic sewage. It is hard to describe other than a sewage-like odor. At the lower part of the lower reach of the Floyd River and along the banks of the Missouri River the odors were much more intense. They were the odors that always prevail in an area where untreated wastes of this type of industry are discharged. It is waste basically warm in temperature so that it steams, so that odors come off quite readily and they are unmistakably identified with those operations.

Q. Is January the only time that you have been in that neighborhood?

A. No, sir; I was also there in August of '58.

Q. And how did the conditions generally compare at that time with what you found there in January of 1959?

A. Very comparable.

MR. SAMSON: That is all. Thank you.

CHAIRMAN WILSON: Any other questions by members of the Board?

Q. (By Chairman Wilson.) Mr. Hopkins, I have just a question or two. In the answer you just gave to Mr. Samson you indicated that this waste was characteristic, I think, of packing plant waste. By that I assume you mean meat packing plants?

A. Yes.

Q. That was the type of industry to which you attributed this waste, was it?

A. Yes, sir.

Q. Well, did you notice any industrial waste that would be characteristic of any other type of industry?

A. No, sir.

Q. And it is industries of that type that are actually located along this Floyd River?

A. Yes, sir.

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Hopkins.

(Witness withdrawn.)

MR. STEIN: Mr. Chairman, at this time we would like to interrupt the Government's case because we are advised that Mr. Trester, of the Metropolitan Utilities District of Omaha, is here. That is the agency responsible for the operation of the Omaha public water supply. We understand that Mr. Trester will not be able to remain in Sioux City because of pressing duties, and we would like the Board to have the benefit of his statement and we would like to, if we might, ask that he be put on as a witness for Nebraska and then we can commence.

CHAIRMAN WILSON: Well, that will be permitted. It may be understood that any party having a witness that has some other engagement, needs to get away, may call that witness out of order. So if there are any witnesses here who are in that situation, they should see their counsel and make the necessary arrangement.

You may go ahead and call him.

MR. STEIN: Mr. Trester of Nebraska.

CHAIRMAN WILSON: May we have the full name of the witness?

MR. TRESTER: Ralph H. Trester.

MR. SHULL: Mr. Chairman, might I just ask as a point of inquiry as to about how long you think this hearing is going to take in time?

CHAIRMAN WILSON: I would be glad to have that information myself. I might ask, as long as the subject has been brought up, I think it would be of interest to anyone, is it possible for the counsel for either side to give any forecast now as to about how long the presentation is going to take?

How about you, Mr. Stein?

MR. STEIN: Barring unforeseen objections, we will expect to be through by tomorrow noon or a little thereafter. We assume by that, from our past experience in dealing with hearings before Administrative Boards, that the rules which ordinarily obtain before a jury will not apply here.

CHAIRMAN WILSON: Can you give us any idea, Mr. Davis, you or your associates, about how much time your presentation might take?

MR. DAVIS: I would imagine a day following the conclusion of the Government's case.

CHAIRMAN WILSON: I might say in that connection that we are planning to arrange to take the Board out on a trip on the river to view this waterfront right after lunch on Wednesday and if enough boats can be obtained, room will also be provided for counsel for the parties and the press as far as there is room available. I think that we are going to have to meet that schedule because the boats have to be brought up here by the Corps of Engineers, so that if the presentation of evidence isn't completed by that time we would have to take a recess for that trip, because the Board feels that it is quite important to get out there and actually view the situation. So if you will, kindly plan your presentation accordingly.

Well, that answers the question as far as we are able to answer it now.

MR. SHULL: I would conclude, Mr. Chairman, that it would look like this might run through Thursday.

CHAIRMAN WILSON: It looks very much like that.

MR. SHULL: Yes. Thank you.

CHAIRMAN WILSON: Go ahead.

MR. STEIN: Actually Mr. Trester is Nebraska's witness and we will just let them go ahead.

(Witness sworn.)

RALPH. H. TRESTER,
called as a witness on behalf of the State of Nebraska, being first duly sworn, testified as follows:

MR. STEIN: May we have your name and position, sir?

THE WITNESS: My name is Ralph H. Trester. I am General Manager of the Metropolitan Utilities District of Omaha, Nebraska.

MR. STEIN: Do you have a statement in this matter which you want to put before the Board, sir?

THE WITNESS: I do.

MR. STEIN: Would you mind giving that to the Board now?

DIRECT TESTIMONY

THE WITNESS: The Metropolitan Utilities District is governed by a Board of six Directors elected by the people of the district. Its territory encompasses the City of Omaha and adjacent areas in both Douglas and Sarpy Counties in Nebraska, including the Capehart Housing connected with the Strategic Air Command in Sarpy County. The General Manager of the District is the highest administrative officer.

The District not only serves water within stated geographical boundaries, but beyond, and in some instances approximately 10 miles beyond its own boundaries or the city limits. There are approximately 78,000 water meters on the District's system, and the area served includes more than 300,000 inhabitants. The public water supply in this area is under the sole and exclusive control of the Metropolitan Utilities District.

The sole source of the public water district supply furnished by the District is the Missouri River. The District's facilities and main pumping station, which takes the water from the Missouri River and processes and treats it in order to produce a safe and potable water for public consumption, is located at the northern portion of the city, adjacent to what was formerly Florence, Nebraska. This station is commonly referred to as the Florence pumping station.

The District has recently completed a $12,000,000 program of improvements at the Florence pumping station. This program was instituted as the result of an engineering study made by a firm of Consulting Engineers. The study included, in addition to other matters, methods of improving the facilities and equipment at the Florence plant to cope with the raw water found in the Missouri River at this point. The particular portion of this program specifically designed to cope with excess stream pollution is the installation of high capacity chlorine treatment equipment which is necessary for the proper sterilization of the raw water and to provide facilities for break-point chlorination. This process, in addition to preventing coliform organisms from passing through the plant and entering the distribution system, also aids in the reduction of the tastes and odors found in the raw water. The improvement program also has made possible the increased use of activated carbon, which is used in connection with tastes and odor control. Facilities for additional lime treatment have always been added.

There have been increased treatment demands to meet the raw water condition, in spite of the reduction of turbidities resulting from the operation of the dams on the river upstream from Omaha. Notwithstanding the fact that our finished water is far in excess of the requirements of State and Federal regulations and is acceptable for interstate use, and we have been able to successfully treat the raw water now found in the river, we have a genuine interest in the quality of the raw water in the Missouri River at the site of our plant. It is the duty of the District to supply a safe and potable finished water to its consumers, and any improvement in the raw water quality is an added safety factor against possible errors in the treatment process, whether human or mechanical. We are constantly on the alert to utilize every means possible to insure the maximum possible safety of the water we supply.

We have instituted procedures for the taking of frequent raw water samples. The reports coming to me indicate that during the winter time, we observe grease on the cross members of the traveling screens at the intakes. The congealed fat globules found often contain small hairlike particles. The coliform bacteria count reported to me for each month, beginning in June '58 and ending February '59, is as follows:

And I will not give all of the figures that I have on this sheet. I will make them available if you so desire. But I would like to point out in '58 in the month of August the maximum coliform count reached 920,000 parts. During the same months, of course, there were minimum conditions which were below the 5,000 optimum, if you please, that is recognized presently. But in other months it got to 490,000, 110,000, and not once but several times in a month.

The two interesting points that the figures contained herein set forth are: One, the variation in the coliform count, which ranges all the way from-- and this is during the past since June of '58--all the way from 460 to 920,000. The second interesting and revealing fact brought out is the number of days that the coliform count exceeds the optimum condition recommended by the United States Public Health Service, a count of 5,000. In June'58 this count of 5,000 was exceeded 22 of the 30 days. In July it was exceeded on 24 days. Likewise, following through the months: August, 25 days; September, 20; October, 22; November, 29; and December, 18. In January of '59 the lowest number of days in which the count exceeded 5,000 parts occurred, amounting to only 14 days. In February, however, again during 25 of the 28 days the optimum count was exceeded.

Increased costs of treatment necessitated by pollution is important, but the risk of possible unsafe water being delivered in a public supply system is more important. Consequently, the quality of the raw water in the stream from which the public supply is taken is of major importance to us because the risk connected with any possible failure of treatment is increased in direct proportion to the increased pollution of the raw water supply. Therefore, reasonable treatment of wastes, whether from sewage or industry, before they are discharged into the streams furnishing raw water for ultimate public consumption, is in the best interests of the public to be served and is a must.

In conclusion, we wish to express our feelings on the matters being discussed today as follows:

1. In view of the fact that we are required to furnish a finished water of unquestionable safety to the people of Omaha, we are vitally concerned with the excessive pollution that is reaching the river from sources above Omaha, and are in favor of steps being taken to reduce the pollution.

2. In this United States of America, we believe that each person, company, city, town or community should bear their fair share of all the problems affecting a general area. Although our company has nothing to do with the sewers in the City of Omaha, we, as citizens, are vitally interested in our sewerage system and, as may already have been pointed out or as will be pointed out, Omaha is doing its fair share to reduce river pollution by starting a program to treat its sewage. We feel that all cities, whether large or small, that are discharging sewage and industrial waste into the river should treat same, and that this is the only means of reducing pollution and improving raw water quality up and down the river.

MR. STEIN: We have no questions.

CHAIRMAN WILSON: Any questions, Mr. Davis?

MR. DAVIS: Yes, if you please, Mr. Chairman.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Trester, how long have you been with MUD, do you call it?

A. Metropolitan Utilities District.

Q. Yes.

A. 1951 June.

Q. What training had you had in this type of work before that?

A. Well, I am not a technical man, if that is what you are trying to bring out. I am in a managerial position.

Q. And what was your work before you went with the Metropolitan Utilities District?

A. I have been in a managerial position in the work since 1956.

Q. Now, as I understand, your District has nothing to do with sewage disposal, sewers or anything like that, in the City of Omaha, it is just concerned with the production of water, is that correct?

A. Yes, sir.

Q. You mentioned that the city has spent a certain sum improving the Florence water station or intake. I didn't quite hear you. How much was it, sir?

A. Will you repeat your question, please?

Q. How much has been recently spent improving your water plant?

A. Approximately $12,000,000.

Q. And within what period of time has that expenditure taken place?

A. From '52 to '56.

Q. Could you describe in a general nature, at least, the nature of the equipment used in your plant, the processes used in water purification?

A. The water is taken in a sedimentation type of way through three presedimentation basins where the sediment in the river is coagulated. Then as it proceeds through the different settling basins different coagulants are added--and I am making this very brief--go through into four upflow basins, where the final treatment is done in the reduction of the items. Well, throughout, of course, lime is being added at different stages, chlorine is being added, an activated carbon is used at a certain place. The final treatment is through a filter plant, after which additional chlorine is added and the water then goes to the distribution lines.

Q. Does this then include prechlorination?

A. Yes, sir.

Q. Would you say that the equipment is the most modern and up-to-date that it is possible to have by a municipality?

A. The reason that I am hesitating for a moment is that I am not certain that I am qualified because I don't know of all different types of chlorine equipment that there is. I would say in a general way we think that it is.

Q. You are satisfied that you have the best or as good as the best in the way of water treatment equipment, is that correct?

A. Yes, sir.

Q. Did I understand that the water in your mains goes outside the City of Omaha for any space around the City of Omaha?

A. Yes, sir.

Q. Is your finished product, the effluent, I believe, subject to being checked by the State of Nebraska authorities in any way?

A. Yes, sir.

Q. In what department is the matter of approving the water that you furnish within the State of Nebraska? In other words, what State Department checks on it?

A. The Department of Health.

Q. And who in the Department of Health is directly responsible for it, if you know?

A. We have been dealing with Mr. Filipi; I believe Dr. Rogers is also in the department.

Q. And who is Mr. Filipi? What position does he hold?

A. I don't know his title. He is the head man, if you please.

Q. He is the wheel in the Nebraska Health Department, the head man?

A. Yes, sir.

Q. In the years that you have been the Manager of the Utilities District, from '51 to this time, eight years, has Mr. Filipi's department ever denied you the approval of or failed to approve of your water for public use within the State of Nebraska?

A. No, sir, he has not.

Q. Is your water also used in interstate carriers, such as railroads particularly, as far as you know?

A. I would assume so.

Q. The approval for such use, do you know if it comes through the United States Public Health Service in the office of Mr. Hopkins who testified this morning?

A. I do not know.

Q. Do you know whether or not the United States Public Health Service has approved the use of your water for interstate carriers?

A. I can answer that indirectly by saying that they also have approved the water and, therefore, it is assumed that it can be used in interstate carrier--by interstate carriers.

Q. Do you know who in your department has approved or, rather, in the Public Health Service Department has approved your water?

A. I have a letter in my file from last year which would--I don't recall the signature on the latter of approval. With your permission I can produce it.

Q. Yes, I would like to have it, sir.

A. This letter, the conclusion reads, "Yours very truly," printed "T. A. Filipi, Director Division of Sanitation," signed "Lonnie E. Dye, Public Health Engineer."

Q. That is the approval by the state?

A. Yes, sir.

Q. You have no information in your file, then, as to what branch of the United States' services approves your water?

A. If I may refer to this file, perhaps I can--

Q. Yes.

A. I am sorry, I don't believe that I have the letter that I am looking for here.

Q. Well, Mr. Trester, let's not take up any more of your time and the Board's with that matter, except we will leave it this way, that in these eight years that you have been Manager of the District the United States Government has approved your water?

A. Yes, sir.

Q. Do you know yourself as to what the minimum standards are for your product as set up by the State of Nebraska and the Federal Government?

A. As I have said before, I am not a technical man. I can not answer technical questions.

Q. Well, in connection with that, Mr. Trester, I will leapfrog a little bit. You in your letter have a listing of the coliform bacteria count, I believe, for certain months in '58 and '59 and you mention in your letter the minimum standards set up, and so forth. Am I to assume that you also have no personal knowledge concerning those things?

A. It has been reported to me with respect to the optimum, the 5,000 figure.

Q. Right.

A. By people in my organization.

Q. Correct.

A. And so I am aware of that.

Q. The tests that were made for the coliform count, which I take it was made in the water before you processed it, who made those tests?

A. People in our plant.

Q. I see.

A. At the Florence plant.

Q. At the Florence plant?

A. Yes, sir.

Q. And when were they made?

A. Well, they have been made regularly throughout each month for some years.

Q. For some years. But you just have reported here starting with what date, sir?

A. June of '58, I believe.

Q. June of '58. Do you also have people in your plant under your supervision who make tests of your finished product?

A. Yes, sir.

Q. Can you recall of any time in the eight years that you have been there that your finished product or the effluent has not met those minimum standards?

A. No, sir.

Q. There was some testimony given at a conference here in July of '58, which is in the record that this Board has received, to indicate that at certain times coliform bacteria had been found in the water after it was processed. I am to assume and believe, then, that that testimony was incorrect and your water has always met the minimum standards?

A. I will answer that in this way, by saying that after the statement appeared in the paper I asked that the records for the months mentioned in the papers be brought into my office and we were unable to find in the records the data or whatever it was that was given at that time.

Q. So that the statements that were made in the July '58 conference were not correct?

A. According to our records they were not.

Q. Now, your statement proceeded, of course, rather rapidly for me to write it down. You used, I believe, the word "questionable" in some way. You didn't mean to infer, of course, that the purity of the water, finished product, is ever questionable? Or did I hear you wrong, sir?

A. Will you repeat that, please? I am not following you.

Q. Well, you used the word "questionable" I thought. To what were you referring?

A. Is this the statement that you were referring to: "In view of the fact that we are required to furnish a finished water of unquestionable safety to the people of Omaha--"?

Q. That is it. Would you mind finishing that sentence then?

A. "--we are vitally concerned with the excessive pollution that is reaching the river from sources above Omaha, and are in favor of steps being taken to reduce the pollution."

Q. I take it when you refer to pollution that is reaching Omaha, you are not taking any position nor are you trying to indicate to the Board where it might come from solely, are you?

A. I am not.

Q. You did mention that grease had been observed on the cross members of your plant there where it came in and obviously, at least for the sake of this record, you don't know where that came from?

A. No, sir.

Q. You are aware that the State of Iowa has permitted a packing plant to be installed that is dumping raw sewage in the Boyer River at Denison, which empties into the river just above your intake, which in river miles is about half as far away as Sioux City, are you not, or are you?

A. No, I am not aware of it. The only thing, would that plant have hair in the grease?

Q. That I don't know. But--

A. This at our plant had hair in it.

Q. Well, this is a livestock packing plant at Denison that was installed within the last several years, so I presume it would be the same type of grease.

MR. EDELMAN: There is no basis in the record for any such assumption, Mr. Davis.

MR. DAVIS: It is a fact which I presume that we will reach sometime in our orderly procedure and we are taking this witness out of order.

MR. EDELMAN: That is right.

MR. STEIN: Mr. Chairman, if I may point out, Mr. Trester is not a Government witness. He is a Nebraska witness. And if some of these questions are not appropriate for cross-examination, we have not been objecting to those questions. But I don't know that Mr. Trester or some of these other people will have counsel representing them to possibly object to questions which they may or may not think are proper for cross-examination.

CHAIRMAN WILSON: Are you interposing a specific objection at this time?

MR. STEIN: No, I am not. But I might suggest that the Board may wish to keep that in mind with some of these questions.

CHAIRMAN WILSON: The Board will take those circumstances into consideration and give them whatever weight they may be worth. But as long as there is no objection made, there is no reason for any ruling now.

MR. DAVIS: Mr. Chairman, I confess I am somewhat puzzled. I thought Mr. Stein and his partner were presenting this case, that is had the burden as we proceeded here today. Now, am I to assume from this statement that I also have as adversaries the States of Missouri, Kansas, South Dakota, and Nebraska separately?

CHAIRMAN WILSON: Only so far as they have entered appearances here.

MR. DAVIS: That was my feeling.

CHAIRMAN WILSON: Well, there is no question before the Board for ruling at the moment, so you may proceed.

Q. (By Mr. Davis.) Mr. Trester, included in your statement was something concerning the added safety factor if the alleged pollution were reduced in the river before you process it. Now, I have two general questions, at least, on that. The first one is this: In the eight years that you have been there has your system ever experienced a mechanical breakdown or a human failure which resulted in coliform bacteria passing through?

A. I can answer that in this way, that in the past two years there has not been. Prior to that time I don't know because I was not--I did not check records with respect to finished water in the same manner that I have in the last two years.

Q. Therefore, your limitation as to two years now is just on the basis of lack of your own personal information?

A. Yes, sir, that is correct.

Q. Have you ever been advised or do the records of your District show any such breakdowns in the number of years that you have records?

A. Well, certainly there has been nothing of a major matter that would, in answer to your first question.

Q. Is it your feeling that if Sioux City was not dumping any sewage or industrial by-products into the river that you then at Omaha would not need to chlorinate and treat your water at all?

A. No, it is not.

Q. As a matter of fact, if Sioux City did not even exist, your water treatment plant would be necessary before the water could be used for human consumption, would it not?

A. Yes, sir.

Q. So that the net result of anything that might be added to the river by Sioux City is to the amount of treatment given the water, isn't that correct?

A. And the chance of a human error occurring.

Q. Yes. Now, I asked you about mechanical breakdown. Have you had any human error that you are aware of?

A. I was answering your previous question on both of them.

Q. I see. Fine. There unfortunately appeared a statement here in July of last year about virus-caused infectious hepatitis in Omaha, the statement was made by Mr. Filipi to whom you have just referred, and that that virus passed through your water treatment plant and caused infectious hepatitis. Have you any such information at all in your records or any knowledge concerning it?

A. No, sir.

Q. I state to you as a preface to another question, I have been advised by your city and county Health Director, Mr. E. D. Lyman, that in connection with the outbreak of hepatitis that you had there was no available data by which it could be concluded as to what the means of the transmission of the disease was, that is to say that there was no data to show that it came through your water supply.

MR. PARDEE: Mr. Chairman-- Are you through with your question, Mr. Davis?

MR. DAVIS: No, I have one other question.

Q. (By Mr. Davis.) I take it you have no quarrel with the statement of your health officer with regard to that, that is in the city?

MR. PARDEE: Mr. Chairman, I find myself in rather an awkward position.

CHAIRMAN WILSON: Just a minute. State your name again.

MR. PARDEE: My name is George C. Pardee. I am general counsel for the Metropolitan Utilities District, the company for whom Mr. Trester is here presently submitting this statement. However, he appears as a witness for the State of Nebraska and in view of what Mr. Stein has said I repeat, I find myself in a rather awkward position. We are not parties to this litigation, only the State of Nebraska, but I do feel at this point the necessity for interposing an objection on behalf of Mr. Trester as his personal attorney, if you please, to this line of questioning concerning matters testified to by others at this conference in July, primarily because Mr. Trester, of course, has not been submitted as a witness on any of those subjects, secondly it is thoroughly without the scope of his direct examination, and also it is getting into technical matters which it is perfectly obvious he does not qualify to testify about. So for those reasons I would like to interpose an objection at this point on behalf of Mr. Trester personally against any further cross-examination concerning these statements coming in out of the July conference, at which no one representing or appearing for the Metropolitan Utilities District was in attendance.

CHAIRMAN WILSON: The objection will be noted and the evidence will be received subject to the objection and subject to the reservation of ruling by the commission as to the evidentiary weight of the testimony.

MR. DAVIS: I would like to explain to you, Mr. Chairman, and to the attorney for Mr. Trester, that I am sorry I have to ask these questions in this way, but we are taking him out of order. I have read that Mr. Filipi is going to testify. I don't know actually whether he will say the same thing again or not. But I have got to take this gentleman on that subject in case Mr. Filipi does.

CHAIRMAN WILSON: Well, I am sure that counsel appreciates that we are not following the strict rules regarding argumentative testimony and assumptions by counsel that may not yet be in evidence, and if we receive any testimony that is affected by such circumstances the Board will give them all due consideration and determine the evidentiary weight to be given to the testimony after it is all in.

MR. DAVIS: The statements to which I referred, incidentally, are in the transcript of the conference which you have. Do I have a question back there?

CHAIRMAN WILSON: That is already in evidence, is it not?

MR. DAVIS: Yes, sir.

CHAIRMAN WILSON: Yes.

(Question read.)

MR. DAVIS: Mrs. Rankin, I will do it differently.

Q. (By Mr. Davis.) I will withdraw my previous question and ask you this, Mr. Trester: Is there any evidence that you know of which would substantiate the statement made by Mr. Filipi last July concerning that?

A. I will answer it in this way, by saying to the best of my knowledge, and I am certain that we would know it, that I would know, there has been no--nothing, either oral or written, come to the Metropolitan Utilities District with respect to this hepatitis.

Q. Well, was he in error, then, in your opinion?

MR. EDELMAN: That is argumentative.

A. Well, I don't know what he said.

MR. EDELMAN: I submit that while we recognize the latitude afforded by the Board, due to the objection that has been made with reference to the witness's lack of qualification I am sure Mr. Davis recognizes that the witness is in no position to say that a health officer was in error as to a statement he made. The witness has testified he has no information on the subject. And I do feel that it is unfair to this witness to put him in that position where he has got to--must answer questions of that kind.

CHAIRMAN WILSON: I think the circumstances are clear to the Board. We will give the witness's testimony whatever weight it may be entitled to and with all due allowances for the circumstances surrounding it.

MR. EDELMAN: Our concern, Mr. Chairman, was with the witness and not with the possibility that his answer might be one way or the other. We just don't--didn't think it was fair to ask the witness to engage in this line.

Q. (By Mr. Davis.) Mr. Trester, the last part of your formal statement which you submitted here has several conclusions in it, one of which is that you are vitally concerned with the sources of pollution above the City of Omaha. Is that correct?

A. Yes.

Q. I heard you correctly?

A. Yes.

Q. Do you have any knowledge as to the fact that the City of Sioux City is 117 miles above your water intake at the Florence plant?

A. I understand that it is.

Q. And you are aware, of course, that there is a certain amount of natural purification and fallout, depending upon the velocity of the stream between Sioux City and your intake that distance of 117 miles?

A. Yes.

Q. Does the City of Omaha, to your knowledge, have a sewer outlet for domestic sewage into the Missouri River in the vicinity of your intake?

A. Below the intake.

Q. How far below your intake?

A. Far enough below that it would be impossible for it to get into the intake works.

Q. Into your intake?

A. Yes, sir.

Q. Do you know how large a portion of the City of Omaha is served by that sewage outlet?

A. No, I am not familiar. The north end of the city, that is all I can say.

Q. That is known as the Minne Lusa?

A. Minne Lusa, that is right, sewer.

Q. I am not sure I can spell that.

A. M-i-n-n-e L-u-s-a, I guess.

Q. Now, Mr. Trester, the City of Council Bluffs, Iowa, lies across the Missouri River in an easterly direction from the City of Omaha, is that correct?

A. Yes, sir.

Q. Are you acquainted with the source of the drinking water or water for domestic use for the City of Council Bluffs, Iowa?

A. In a very general way only.

Q. Well, do they use river water?

A. They use both river and well water.

Q. Both river and well water. Do you know that recently their plant was modernized, that is that uses river water the same as yours?

A. Yes, sir.

Q. How long ago was that?

A. I think they are still working on it, as a matter of fact, but several years ago.

Q. Where is their intake for their plant which processes river water with reference to your Florence intake on the river?

A. It is below, and below the Minne Lusa sewer, if that is what you are trying to get at.

Q. All right, it is down river, below the river from your intake, and how many miles, if you know, below the Minne Lusa sewer?

A. Several miles.

Q. I would take it, then, that you would also--rather, that you would feel that the people of Council Bluffs would be vitally concerned with the sources of river pollution above them, particularly since the Omaha outlet is only a few miles above their intake?

A. Yes, sir, I would.

Q. And they would have undoubtedly greater cause for concern where it is a matter of a few miles instead of 117 than would the people of your city?

A. With one exception. I am informed, and I don't know this myself, this is hearsay with me, but the channel and the way the river goes and flows with respect to this sewerage, they are not getting the full impact, if you please.

Q. From Minne Lusa, is that correct?

A. Yes, sir.

Q. I will ask you one more question only, Mr. Trester. I don't know as to whether or not you have any information on it. But are there other cities on the Missouri such as Council Bluffs, St. Joseph, Kansas City, Kansas, Kansas City, Missouri, and Lexington, Missouri, who use river water where the average coliform bacterial count has always been in excess of that at Omaha at your Florence plant?

A. No, sir, I do not have any information on that.

Q. You have no information at all on that?

A. No.

MR. DAVIS: I have no further questions, Mr. Chairman.

CHAIRMAN WILSON: Does any other counsel have any questions?

Any members of the Board?

MR. SAMSON: I have a question or two, Mr. Trester.

Q. (By Mr. Samson.) You were speaking about the Minne Lusa sewer. That sewer, isn't that located several miles downstream from the waterworks, and the sewer that is in the proximity of the waterworks is a small sewer that drains the Florence hills?

A. You may be correct. I was under the impression that that was the Minne Lusa sewer just below us, but you may be correct, sir.

Q. Now, you said something about the lessened turbidity of the Missouri River. I would like to have you clear that up. What did you mean by that, that there is lessened turbidity?

A. Well, as a result of the dam upstream, the sediment settling out rather than coming down at flood periods and other times of the year, we find less sediment in the water now.

Q. Now, irrespective of that you have found it necessary to increase the cost of the treatment of the water at Omaha, is that a fact?

A. Yes, sir.

Q. Do you know offhand, Mr. Trester, about how much increase there has been in that cost?

A. No, I do not, because--I will try to explain it this way. There was increased chlorine usage up to some months ago, at which time we changed the treatment of the water. We are using a great deal more lime now as we go into the water softening program, which in effect is taking place of part of the chlorine. With respect to extra dollars and cents, no, I don't have that information.

Q. And is this the treatment for the purpose of purification, this increased cost of treatment?

A. Yes, sir. Where you are using lime, however, it is doing two things, both to soften water and the treatment of the water.

MR. SAMSON: I believe that is all. Thank you.

That is all I have, Mr. Chairman.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: Yes, I have a few questions I would like to ask, sir.

Q. (By Mr. Kurylo.) You mentioned that between the years 1952 and 1956 the City of Omaha expended $12,000,000 in capital investment in a water treatment plant, is that correct?

A. Yes, sir.

Q. Is that attributable in part to a need for increased facilities to take care of the expanding population?

A. Yes, sir.

Q. How much of this $12,000,000 might not have been required if the raw water met the minimum approved requirements, that is 5,000 counts of coliform bacteria; how much money could be saved if you received water that quality in your intake plant?

A. I thought that we had in our own shop got the answers to most of the questions that we thought would be asked, but frankly we didn't explore that one. With the court's permission, I can't answer the question. If you would like, we would be glad to send the answer to that question back or however you might care to handle it. I don't know, sir.

Q. I think you said that you didn't know, but I will ask the question again to make sure that you are being asked the same question. Do you know how much your annual operating expenses are now?

A. That is of all factors?

Q. For water purification.

A. Approximately, not specifically.

Q. Approximately. What is your approximate annual operating expense for water purification?

A. I will say approximately a couple hundred thousand dollars.

Q. Do you know how much less your water purification costs might be if you received raw water based on this 5,000 parts coliform bacteria?

A. No, I do not.

Q. Can you obtain that information during the course of this hearing?

A. Yes, sir.

Q. Can you obtain the other information during the course of this hearing?

A. I think so.

MR. KURYLO: Mr. Chairman, it seems to be desirable to have the information in the record, if necessary to have this witness or someone else appear here to bring that data in the record.

CHAIRMAN WILSON: Perhaps counsel for the Government has in mind bringing in some evidence of that kind.

MR. EDELMAN: No, we had not, Mr. Chairman.

CHAIRMAN WILSON: Well, if it can be supplied it would be received and given whatever consideration it may be worth. I understand this witness is not a witness for the Government.

MR. STEIN: That is correct, sir.

CHAIRMAN WILSON: So it would be entirely a voluntary matter, whether your agency wishes to submit that information, Mr. Trester, and if you want to submit it here, have it presented, we can consider its reception when it is admitted.

A. We will do our best to give an honest answer.

CHAIRMAN WILSON: Any other questions?

Mr. Poole has some questions.

MR. POOLE: I think only one, sir.

Q. (By Mr. Poole.) There has been repeated reference to the 5,000 count and the 5,000 count parts per million, and your document also gave a range then of count of from 460 to 920,000. Now, may I assume that all of those refer to counts per one hundred milliliters of water?

A. Yes, sir, they do.

CHAIRMAN WILSON: Any other questions?

MR. METZLER: Yes, I would like to ask two questions, if I may.

CHAIRMAN WILSON: Mr. Metzler.

Q. (By Mr. Metzler.) My first question is, do you have records which show the trend or show any trend in chlorine consumption or chlorine use per million gallons of water treated over the last few years?

A. Yes, sir.

Q. What do those indicate?

A. I don't know. I don't have them with me. As I said before, let me hastily add this, that up until about six months ago there was a trend upward and then because of the change of the treatment and more lime being used it reversed itself, with the water being treated in another manner. But I was thinking you were trying to be specific as to amounts, and so forth, which I could not do.

Q. The trend was what I was interested in, sir.

A. Yes, sir, the trend has been upward.

Q. One other question. Have you had an increase or a decrease in problems from taste and odors?

A. We have had an increased problem in tastes and odor.

MR. METZLER: Thank you, sir.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: Mr. Chairman.

CHAIRMAN WILSON: Mr. Davis.

Q. (By Mr. Davis.) I have two other questions related to those asked by Mr. Poole and Mr. Metzler. I probably rather awkwardly was trying to ask what Mr. Metzler did ask you in this way when I was asking you concerning the necessity of treating the water regardless of Sioux City. So I now will put it to you in this fashion. If this alleged pollution didn't exist above the Government standards would you still have to have the same equipment, physical equipment, that you have now in order to soften the water and to serve the expanded territory there in Omaha?

A. I would think not to the degree.

Q. Not to the degree. Is it a degree of the amount of equipment or the amount of chlorine that you use?

A. Well, and amount of pollution. The degree is present in all three cases.

Q. Yes. But would you need the same physical equipment, mechanical equipment?

A. The same type.

Q. Yes.

A. But quantity is different. In other words, we are putting more chlorine in, to require larger amounts of equipment.

Q. To put in more chlorine?

A. Larger amounts of chlorine.

Q. Which might be a clue for you to get the information that Mr. Kurylo asked for, is that correct? Now, Mr. Poole's question referred to your statement concerning the coliform count running from 460,000 to 920,000. So there will be no misunderstanding to the Board here, those are high points, are they not?

A. Yes, sir, that is correct, and I believe--

Q. You wouldn't want the Board to believe that the lowest--

A. From 460, not 460,000.

Q. Oh.

MR. POOLE: That was my statement.

Q. (By Mr. Davis.) So we all misunderstood. It was from 460?

A. Right.

Q. That was the low, to a high of 920,000?

A. That is correct.

MR. DAVIS: Thank you.

CHAIRMAN WILSON: Any other questions?

MR. SAMSON: I just have one more, Mr. Trester.

Q. (By Mr. Samson.) I want to clear this point up. There to your knowledge are no sewers draining into the Missouri River, oh, within many miles up above the Florence intake, are there?

A. Well, I would--no, there are none that I know of for many miles north of Florence.

MR. SAMSON: Yes. Thank you very much.

MR. DAVIS: May I ask Mr. Samson and the witness, what you mean by many miles? Do you mean over 30 or 40?

MR. SAMSON: Oh, that becomes relative. Let's say five or ten.

MR. DAVIS: Oh, fine. That is all right. I accept the question and answer.

MR. SAMSON: Thank you.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: Yes, sir.

CHAIRMAN WILSON: Mr. Kurylo.

MR. KURYLO: The discussion has raised a few questions in my mind.

Q. (By Mr. Kurylo.) Could you produce evidence on the coliform count day by day over the last two years?

A. Yes, sir.

MR. EDELMAN: If I may inquire, Mr. Chairman, does Mr. Kurylo mean the coliform count at the raw water intake?

MR. KURYLO: At the raw water intake.

A. That is what I assumed and you are talking about the records coming from the tests that we make each day?

Q. (By Mr. Kurylo.) Each day over the last two years and farther back if you have it?

A. Yes, sir.

MR. KURYLO: It would be desirable, Mr. Chairman, to have that information in the record.

CHAIRMAN WILSON: Well, if it isn't too much trouble for the witness to produce that information and have it submitted here, we would be glad to give it whatever consideration it might be worth. The Board is in no position to initiate any special investigations of that nature. In order to take any action on that it would be necessary for us to go into executive session and consider how much work or trouble and time might be involved, I think. So that the best we can do now is to suggest to the witness that if he can produce that evidence--

MR. DAVIS: Mr. Chairman, perhaps I can.

CHAIRMAN WILSON: --we will be glad to give it whatever consideration it might be worth.

THE WITNESS: I would be happy to.

MR. DAVIS: Perhaps I can solve your problem. The city would be glad to initiate the request for those records and ask only that you couple with it your records of your test of the effluent for the same period of time, as to whether or not anything passed through it. We will be glad to make that request for the facts for the Board's consideration.

CHAIRMAN WILSON: Can you send that information up here in some way within the next day or two while we are still in session?

THE WITNESS: Yes, sir.

CHAIRMAN WILSON: All right, it will be so understood.

THE WITNESS: As I understand now, there are three questions, this last one plus the two that the gentleman here asked for.

CHAIRMAN WILSON: Very well.

No other questions, Mr. Trester will be excused.

(Witness excused.)

(Off the record.)

MR. EDELMAN: Has the Chairman declared a recess?

CHAIRMAN WILSON: Would you like to take a recess now?

MR. EDELMAN: We have a number of witnesses, Mr. Chairman. We will recess if the Chairman so indicates. We have a number of witnesses to put on who would like to get on this afternoon, Mr. Chairman. We are not asking for a recess at this time.

CHAIRMAN WILSON: Well, the Secretary was just asking if it would be possible in order to accommodate the deputy clerk here who has some other work to do if you could bring up several of your witnesses whom you intend to call this afternoon and have them sworn all at once. Can you do that?

MR. STEIN: Mr. Chairman, we have requests from four witnesses who are not Government witnesses and we were going to ask to have our case deferred while these people could be heard. We would like these four witnesses to be sworn this afternoon and perhaps another witness or two of the Government's if we could.

CHAIRMAN WILSON: Well, can you call a few of those witnesses--

MR. STEIN: Yes.

CHAIRMAN WILSON: --and have them all sworn at once so the clerk can get about her duties?

MR. STEIN: We call Mr. Mel Steen, Mr. George Fisher, Mr. Story, and Mr. Rogers, Mr. Erskine, and Mr. Pafford.

CHAIRMAN WILSON: Those witnesses will all come forward and be sworn, please, and then you may call them to the stand in their turn.

Mr. Stein, may I ask this? As I announced at the outset of the hearing we can't undertake to spend a lot of time here in hearing miscellaneous statements and testimony until the regular evidence has been submitted. Now, are these witnesses witnesses for parties who have appeared here as being parties in interest?

MR. STEIN: This is our understanding, that these are witnesses for parties in interest who have appeared here, witnesses largely for the State of Nebraska and Government witnesses.

CHAIRMAN WILSON: Oh, well, with that understanding, of course, their testimony will be--

MR. STEIN: Now, we have no knowledge at this point, of course, of what the State witnesses will say.

CHAIRMAN WILSON: Well, seeing the number of witnesses come forward here, I was just wondering whether they might be in the category of representatives of different organizations who might have a good deal of the same material to submit and perhaps might shorten time by conferring with one another and selecting a spokesman to present their statements in Congress.

MR. STEIN: I understand two of these witnesses are Izaak Walton representatives.

CHAIRMAN WILSON: It is understood, Mr. Stein, that each of these witnesses has some material testimony to offer in behalf of an interested party and it would not be possible to consolidate any of it?

MR. STEIN: Sir, we can only speak for the witnesses who have been called by the Government. We can not speak for the witnesses who are here at the behest of the State of Nebraska. I would hope that they would be able to get together and see if they can consolidate their testimony.

CHAIRMAN WILSON: Well, I will simply repeat for the benefit of these witnesses, in case they didn't hear what I said this morning, that we do not want to exclude any material testimony, but at the same time we want to avoid duplication because of the large extent of the subject matter to be covered here. So I will leave it to these witnesses themselves and if there are any of you who can get together and select a spokesman to serve in combination, I hope you will be able to do that.

With that understanding, will the Secretary please take the names of all these witnesses so you will know who are all here and have them sworn?

SECRETARY AYERS: May we repeat them for the reporter. Your name, sir?

MR. PAFFORD: Pafford, H. J. Pafford.

SECRETARY AYERS: Your name, sir?

MR. FISHER: George Fisher.

MR. ROGERS: J. Justin Rogers.

SECRETARY AYERS: Your name, sir?

MR. MC KOWN: Russell L. McKown, M-c-K-o-w-n.

MR. VOSS: Dale Voss, Jr.

MR. STORY: A. H. Story, S-t-o-r-y.

MR. STEEN: Melvin O. Steen.

(Witnesses sworn.)

CHAIRMAN WILSON: Very well, Mr. Stein. Are you going to call these witnesses in order?

MR. STEIN: We will call them.

Mr. Fisher.

GEORGE FISHER,

called as a witness on behalf of the State of Nebraska, being first duly sworn, testified as follows:

MR. STEIN: Mr. Fisher, would you identify yourself, give your name, address, and position for the Board, please?

MR. DAVIS: If the Board please, I am now at a loss. Do I understand that you didn't call this witness?

MR. STEIN: That is correct.

MR. DAVIS: Who called him?

MR. EDELMAN: This is a public hearing. The State of Nebraska has entered an appearance. This is a witness that the State of Nebraska intends to present. We have consented to put him on ahead of other witnesses that are being called by the Government.

MR. DAVIS: I was anxious to accommodate you and Mr. Trester; it was obvious he couldn't be here. But am I to assume that we are going to have narrative statements, Mr. Chairman? You, of course, appreciate my concern at this point is as to when and how I will make my objections as to his testimony without it being in question and answer form.

CHAIRMAN WILSON: Well, you or any other counsel, Mr. Davis, will certainly have the privilege of objection and cross-examination, and if the witness merely presents a statement in narrative form and you feel at any point any prejudice is resulting, it is your privilege to interrupt him and say so.

MR. DAVIS: Fine.

CHAIRMAN WILSON: But I thought it was understood all around that this group of witness did not appear for the Government, but did appear for interested states or other interested parties who have noted their appearance here and that simply as a matter of accommodation we are taking them out of order.

MR. STEIN: That is right.

CHAIRMAN WILSON: Because it would be inconvenient for them to remain over tomorrow.

So with that understanding, Mr. Fisher, will you identify yourself and state your employment and capacity and whom you represent, and proceed to make your statement.

DIRECT TESTIMONY

THE WITNESS: I am George Fisher, Director of Public Works for the City of Omaha, Nebraska. I have a statement here that I would like to read. It isn't too long.

I have been requested by Mayor John Rosenblatt of the City of Omaha to appear before this meeting to report on the views of the City of Omaha with respect to the obligation of all communities along the Missouri River to abate the pollution of the river caused by the discharge of untreated sewage. I am also to give a progress report on the actions of the City of Omaha since it assumed full responsibility for its obligation to remove its portion of untreated sewage from the river.

I believe that I state the feeling of the Mayor and the governing body of the City of Omaha and the majority of its citizens when I say that the wonderful big Missouri River should not be polluted by anybody, including ourselves. Up near the north end of the city the Metropolitan Utilities District pumps water from the river, treats it and distributes it throughout the city. This is our drinking water and we all want it as clean as possible. No community north of us should dump untreated sewage into this river so as to create any possibility of contamination of the water that the Metropolitan Utility District pumps, treats and distributes to the citizens of Omaha. By the same token, the City of Omaha should not pollute the river so that polluted water has to be pumped, treated and distributed to citizens of other cities downstream from Omaha.

It is just as simple as that. No person or community should pollute a water facility with such industrial, commercial, traffic and recreational possibilities as are possible with the Missouri River.

At this point it would be well to point out that Omaha has at least one sewage treatment plant that treats approximately one-third of the area of the City of Omaha, and even though the effluent flows via the Papio Creek into the Missouri River it still represents treatment of the sewage of approximately one-third of the city's total area. In this respect Omaha is not usually given credit for at least partially treating its sewage. This is possible due to the fact that discharge into side streams such as the Papio does not commonly come under studies of the very large rivers. Be that as it may, however, Omaha should be considered in its proper light in this regard since very few, if any, other main stem Missouri River cities can point to even one-third of their area as being treated.

Operating under Public Law 660 of the 84th Congress, known as the Federal Water Pollution Control Act, a conference on the main stem of the Missouri River in the Omaha area was held in Omaha in June of 1957. This covered the reach of the stream beginning north of Omaha and below Nebraska City, Nebraska. Representatives of water pollution control agencies in Nebraska, Iowa, Missouri, Kansas, and the Public Health Service attended the conference. At that time it was mutually agreed that contract awards for the various phases of the collection and treatment of the sewage and wastes from the City of Omaha would be made up by the following dates:

Papillion Creek plant improvements January 1, 1958; North Omaha interceptor sewers January 1, 1959; North Omaha sewage treatment plant January 1, 1959; South Omaha interceptors and South Omaha treatment plant January 1, 1960.

The improvement to the Papillion Creek sewage treatment plant is now under construction by virtue of a contract let by the City of Omaha early in 1958. We now have awarded the engineering contract for the plans and specifications for the North Omaha interceptor sewer. The contract for construction will be awarded around July 1, 1959, and the costs will be met by bonds plus a $250,000 grant from the Federal Government. This north interceptor will carry all the sewage from the north part of town past the water intake of the City of Council Bluffs, Iowa, and dump this sewage into the river at about Grace Street. The rest of the over-all anti pollution program of the City of Omaha consists of continuing this interceptor sewer on down the river to approximately Monroe Street. The south interceptor, from Grace Street out, that is, would intercept all of the sewers and carry all of the sewage to a new treatment plant on the bank of the river near Monroe Street. The engineering contracts have been awarded for the plans and specifications both for the south interceptor and the south sewage treatment plant. The north and south interceptor sewers would collect the sewage from at least 23 sizeable sewers which now empty directly into the Missouri River. By this means Omaha will clean up its mess in the Missouri River and thus provide better water for the cities below it which get their drinking water from the river. Such action will also create a very nice and useful recreational facility for the citizens of Omaha. They will not have to row their boats or run their motor boats through a bunch of sewage in the river but, rather, through clear, unpolluted water. By this I mean unpolluted water as far as Omaha is concerned. Let us hope that it will be unpolluted so far as cities upstream from Omaha also are concerned.

As all of you undoubtedly know, the Honorable Mayor Rosenblatt appointed 300 citizens of Omaha to devise a plan of long-range improvements for the city. This plan, known as the Omaha plan, a $68,000,000 program of capital improvements, was submitted to the voters on June 17, 1958. One of the major portions of this plan was a sewer and sanitation section calling for an expenditure of over $20,000,000. This $20,000,000 was to be financed by general obligation bonds, revenue bonds, grants from the Federal Government, income from a sewer-use fee, and from previously approved bonds. The sewers and sanitation section of the Omaha plan contained definite provisions for the construction of the north interceptor sewer, the south interceptor sewer, and the necessary sewage treatment facilities. The voters of Omaha decided they did not want this bond issue approved and voted it down by more than a two to one majority.

Then it became the obligation of the city to figure out other ways and means of getting this improvement built so as to remove the pollution of the Missouri River. We went before the voters in November 1958 in an endeavor to get them to approve sufficient bonds for at least the construction of the north interceptor sewer, which will remove pollution from a portion of the Missouri River and provide better and safer water for Council Bluffs, Iowa. They approved an $8,000,000 Bond issue by a four to three vote.

Now in the spring of 1960 we will have to try to get another $13,000,000 bond issue approved in order to build the south interceptor and the sewage treatment plant. It is the hope of the governing body of the City of Omaha, and I am sure by a great many of the citizens, that we can clean up our mess in the river and thus make the whole area a better place in which to live. If this bond issue is approved, we will have the interceptor plant under construction by July 1960, only six months later than we promised in 1957 and six months earlier than we promised at the July 24, 1958, meeting in Sioux City, Iowa.

Thank you very much for this opportunity. That concludes my statement, gentlemen.

CHAIRMAN WILSON: Any questions?

MR. STEIN: No questions.

CHAIRMAN WILSON: Do you have any questions, Mr. Davis?

MR. DAVIS: Please.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Fisher, as I read your statement with you, actually the people of Omaha voted down your comprehensive sewer program which was included in the other bond issues by almost a two to one vote, is that correct?

A. That is right.

Q. Under your law it is necessary that a referendum be had on the question of issuing bonds to pay for sewer plant improvements?

A. That is correct.

Q. And so far as what has actually been approved by the voters of the City of Omaha, that is limited to an $8,000,000 bond issue?

A. That is correct. And of course that doesn't all go for the north interceptor. That is for some other sewers besides the north interceptor.

Q. In fact, how is that $8,000,000 bond issue split up?

A. It is split up about two and a half million for the north interceptor and the other--two and a half million for the north interceptor, six hundred thousand dollars for the plans and specifications for the south interceptor and plant, and the rest of it is for other sanitary sewer mains that are needed in the city.

Q. Then actually, except for two and a half--

A. $3,300,000 will be--

Q. $3,300,000? I have $3,100,000 of it--

A. You are right.

Q. --is connected or related to sewer works?

A. Related to--

Q. Treatment?

A. --treatment of the pollution of the river.

Q. Right.

A. That is right.

Q. Out of the eight million?

A. That is correct.

Q. And this has to do with the installation of interceptors in the north part of the city?

A. That is correct.

Q. You were present here when Mr. Samson inquired of your, well, your MUD Director as to what sewer it was that empties into the river above Council Bluffs intake. Can you straighten out that question?

A. Yes. The northermost sewer that dumps into the river is known as the Bridge Street sewer. That is not a very large sewer, doesn't drain a very large area but it dumps out 100 or 200 feet south of their water intake, I mean downstream from their water intake. Then on downstream from that, oh, it is about--

Q. By their water intake you mean Omaha's?

A. Yes.

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Q. All right, sir.

A. The next one downstream is the Minne Lusa outlet and it is quite a sizeable sewer. I don't remember the figures. I think it is around 12,000,000 gallons a day or something like that. It is rather a large sewer and serves quite a large area of north Omaha. But is is, oh, it is a mile or mile and a half south of M. U. D. water intake and by the Missouri River I inagine it is about two or three miles north of the Council Bluff's intake.

Q. You say it serves a large area north of Omaha?

A. That is correct.

Q. Also in respect to the treatment works here ana used area. Could you give us a statement concerning the number of people it serves?

A. Oh, I am afraid I can't with any degree of accuracy. If I ahd our various sewer reports here I could, but I would hesitate to guess.

CHAIRMAN WILSON: Mr. Davis, are you going to have much more cross-examination?

MR. DAVIS: Yes, I would think so.

CHAIRMAN WILSON: If so, I think we will take our afternoon recess of 10 minutes.

MR. DAVIS: Fine.

(RECESS)

CHAIRMAN WILSON: Before we resume the cross-examination of this witness, I would like to repeat something that Isaid at the opening of the hearing, that while this is a public hearing and we do not want to shut off the presentation of anything by anyone who has something material to submit, that it is not a free-for-all hearing. Under the regulations we are limited to hearing those who enter appearances as interested parties, including those who are listed in the notice of the hearing as being charged with the responsibility, and such others as the Board determines to admit. Now, during the recess I asked the Secretary to check up with the group of witnesses who were sworn in a group here before Mr. Fisher took the stand as to whether they represent interested parties, as I understood from Mr. Stein they did, and I want to repeat that statement now, that if there are among those witnesses any who do not represent parties named in the notice or the interested states or governmental sub-divisions of those states who might be appearing under the appearances of their state agencies, if there are any others representing organizations or other interests that have not entered an official appearance here, I must ask them to check with the Secretary and he will then take it up with the Board and I will have to consult with the other members of the Board as to whether they are to be admitted or not. And in any event, I want to repeat my previous admonition, to try to condense your statements as far as possible. We have been quite liberal in admitting statements which include not only statements of testimony but a considerable amount of argumentative matter that perhaps properly might better be deferred until the close of the hearing. And of course I am sure that the counsel for the interested parties are going to submit arguments that will cover all the matters in which they are interested, and as far as other argumentative material is concerned we would ask that at the present time when we are interested in getting in the evidence as fast as possible that the argumentative material be kept at a minimum.

With that I will suggest that if there are any of these witnesses that have not--who represent parties not yet formally admitted here, that they check with the Secretary so that we may take that up before they are called.

You may proceed, Mr. Davis.

Q. (By Mr. Davis.) As I recall, my last question had to do with the matter of the number of people served by the sewers in the north part of Omaha and you stated that you couldn't tell according to population. Now, perhaps, Mr. Fisher, I interrupted you. Are there other sewer outlets north of Council Bluffs' water intake than the two you have mentioned?

A. There are no other large ones. There may be some small ones entering the river of overflow pipes and such, but those are the only two large ones that have any discharge of any quantity.

Q. Could you give the Board an estimate, at least, as to the percentage of domestic sewage of the City of Omaha that is discharged into the Missouri River north of the Council Bluffs, Iowa, water intake?

A. I should preface that statement by saying that there is a definite ridge running north and south through Omaha. Everything west of that ridge is treated at our present Papillion plant. Everything east of that ridge now goes into the Missouri River. We are--the capacity of the new plant that we will build to take care of that sewage east of the ridge will be approximately a 60,000,000-gallon plant, that is 60,000,000 gallons of sewage a day. I would estimate that one-fifth of that comes from the area north of Council Bluffs, I would say around 12,000,000.

Q. Now, in your prepared statement in speaking of this north interceptor sewer, you state that it will remove pollution from a portion of the Missouri River and provide better and safer water for Council Bluffs, Iowa. Mr. Fisher, the Board is not to infer from this statement, is it, that you believe that the water at Council Bluffs is unsafe for human consumption?

A. I would like a clarification of that. You mean the water that Council Bluffs furnishes directly to its people?

Q. Yes.

A. No, it isn't unsafe for them to drink.

Q. As far as you know, it meets the same standards as the water in Omaha or Sioux City?

A. As far as I know, yes, sir.

Q. You see the purpose of my question is not to show that you are dumping somewhere, but to show the efficiency of the present water treatment equipment in Council Bluffs, that is what I am getting at. Now, you have no figures as to the coliform count at the Council Bluffs intake at the present time?

A. No, sir, I do not.

Q. Do you know whether it is higher than at Omaha or not?

A. I know nothing about it.

Q. Actually so far as the Nebraska law is concerned, the only portion of your program that you can be sure of at this moment is the $8,000,000 bond issue, of which $3,100,000 is going to be used for sewer removal purposes.

A. That is correct.

Q. So that when you state that a plant is planned and that other interceptors are planned, that is subject to the will of the voters of Omaha at some future election?

A. The construction of those facilities is dependent upon the vote of the people, yes, sir.

Q. Right. Now, within this $3,100,000 that you are definitely assured of, you are going to construct interceptor sewers, as I understand your statement, for the north portion of the City of Omaha and then dump it into the river still but at a point below the Council Bluffs' intake, is that correct?

A. That is correct.

Q. And there hasn't been, well, one cent of money set up to build a disposal plant as of this time?

A. Not south of that point. The only money that has been set up is the money to draw the plans and specifications.

Q. Right. Now, were you in the courtroom this morning when Mr. Hopkins testified concerning the chronology of this particular case, commencing in 1951 or 1952, as I recall?

A. I was not here this morning.

Q. You were not here. Were these sewers in north Omaha discharging into the river a few miles above the Council Bluffs' intake at all times during the preceeding seven years from the date of this hearing?

A. As far as I know they were, yes, sir.

Q. Has the City of Omaha been subjected to a conference such as was held here in July or a proceeding such as this concerning those sewers?

A. It was, in July '57, 1957.

Q. And that was a conference, is that correct?

A. That is correct.

Q. But not a hearing before a Board such as this?

A. That is correct.

Q. What is the population of Omaha?

A. As near as I can give it to you, it is around three hundred five or six thousand.

Q. So that the ratio of what the City of Omaha has spent in connection with removing pollution from the river, that is this $3,100,000, to your population of Omaha is about $10 per capita? Or am I way off on my figures?

A. That is correct as far as the pollution of the Missouri River is concerned. We are now spending over $2,000,000 to increase the plant on the west side of the city. Total sewage treatment at the present time, authorized and either under construction or in the planning stage, I mean where we have the money to actually build it, is over $5,000,000.

Q. Why is the other $2,000,000 being spent?

A. That is to increase the size of the Papillion Creek station over on the west side of town.

Q. Which handles all of that on the west slope?

A. That is correct.

Q. Which does not go directly into the Missouri River now in any event?

A. No, it does not go directly into the Missouri River.

Q. So far as the dumping of raw sewage into the Missouri River is concerned, my ten to one ratio is about right?

A. I wouldn't say it is, because you would have to subtract from the population of Omaha that population lying west of the ridge that is served by the Papio plant and then make your ratio based on the population lying east of the ridge, between the ridge and the river, which I would judge to be about two hundred--well, two hundred twenty, two hundred thirty thousand.

Q. Does Omaha have anything to do with the sewage disposal for this air base--and correct me if I use the wrong term--down at what was old Fort Crook?

A. No, we do not.

Q. Do you know what facilities is maintained by the Air Force there?

A. I know they have a plant, but I know very little about it.

Q. Very little about it. Do they get water from your city, do you know? If you don't--

A. I can't answer that. I don't know.

Q. All right. Just one other question, Mr. Fisher. That was my question to you concerning the population of Omaha, I meant Greater Omaha. I was not asking necessarily for the corporate limits. Perhaps I wanted you to give me the Chamber of Commerce figures.

A. The figures I gave you were the figures that were in the World Herald not very long ago where they gave the population and the bank deposits and the number of telephones and all that kind of information.

Q. I see. It wouldn't be as high as 400,000?

A. No, sir.

MR. DAVIS: I have no other questions.

CHAIRMAN WILSON: Any other questions?

MR. EDELMAN: Yes, Mr. Chairman.

CROSS-EXAMINATION

BY MR. EDELMAN:

Q. Mr. Fisher, Papio treatment plant, as I understand your statement, empties into the Papio Creek and that does flow into the Missouri River, does it not?

A. That is correct.

Q. In other words, the effluent from the west side which is treated at the Papio treatment plant runs into the Missouri River?

A. That is correct.

Q. You mentioned a conference which was held at Omaha in 1957 and in your statement you indicated that a schedule of remedial action was agreed on at that conference, is that correct?

A. That is correct.

Q. Can you tell me to what extent the city has complied with that schedule of remedial action?

A. The dates are given on page 2 of my written statement. The Papillion Creek plant, contract was to be let January 1, 1958; that contract was let, if I remember dates correctly, close to February 1, 1958. The North Omaha interceptor sewers, contract was to be let by January 1, 1959. That contract will be let by July 1, 1959, six months afterwards. No. 3, North Omaha sewage treatment plant, there will be no North Omaha sewage treatment plant. That is out. No. 4, South Omaha interceptors and South Omaha treatment plant, January 1, 1960. As near as we can tell now, and if the people approve the bond issue in the early part of 1960, that will be under contract by July 1, 1960.

Q. In other words, you have taken action in accordance with the recommendations to abate pollution?

A. We have, yes, sir.

Q. Would you go into a little more detail as to what you meant by your statement, I think it is on page 4 of your statement, that the construction of the north interceptor sewer will provide better and safer water for Council Bluffs, Iowa?

A. It will provide, we feel, better and safer water for Council Bluffs, Iowa, because we will intercept all of the sewage north of that plant and dump it back into the river south or downstream from the plant. Therefore, we will remove whatever pollution Omaha has been putting into the river, which will be very much in favor of the Council Bluffs plant.

Q. In other words, by reducing the level of pollution of the water you consider that that provides a safer and better source of raw water for treatment?

A. That was my interpretation, yes, sir.

MR. EDELMAN: That is all, Mr. Chairman.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: No questions.

CHAIRMAN WILSON: Members of the Board?

MR. KURYLO: Just one question, Mr. Chairman.

Q. (By Mr. Kurylo.) Do you know how much Council Bluffs might save after you construct your interceptor sewers, say in the cost of maintaining and operating its water treatment plant?

A. I have no way of telling, sir.

CHAIRMAN WILSON: Any others?

Q. (By Mr. Samson.) Mr. Fisher, I just wanted to clear up a couple points here. According to my computations there are about $4,900,000 left of the bond issue after you have used the money for the plans of the South Omaha interceptor and the construction of the North Omaha interceptor. How much of that money will be used in connection with the Ralston problem, that is increasing the size of the treatment plant down there to clean up this--is it the Papio pollution problem?--that ultimately drains into the Missouri River?

A. $400,000.

Q. And of course that will clean up-- Is that a serious pollution problem at the present time?

A. That is a very serious pollution problem in the Papillion Creek.

Q. And of course that reflects itself ultimately in the Missouri River, isn't that right?

A. Because Papillion Creek empties into the Missouri, yes, sir.

MR. SAMSON: I think that is all.

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Jones.) Mr. Fisher, this interceptor sewer that you are going to discharge below the Council Bluffs plant, that will still be untreated sewage?

A. That is correct.

Q. Until such time as you build your treatment plant?

A. South interceptor and south treatment plant.

Q. You will still be discharging untreated sewage?

A. That is correct.

CHAIRMAN WILSON: That is all, Mr. Fisher.

(Witness excused.)

MR. STEIN: Next we have Mr. Mel Steen, who is representing Nebraska, a party in interest in this case. And we will defer the Government's case, if we may, until Mr. Steen has completed.

CHAIRMAN WILSON: You have already been sworn, have you not, Mr. Steen?

MR. STEEN: Yes, sir.

CHAIRMAN WILSON: Are you going to identify him?

MELVIN O. STEEN,

called as a witness on behalf of the State of Nebraska, being first duly sworn, testified as follows:

MR. EDELMAN: Mr. Steen, will you please identify yourself for the reporter.

THE WITNESS: I am Melvin O. Steen, Director of the Nebraska Game, Forestation and Parks Commission, Lincoln, Nebraska.

Mr. Chairman and Gentlemen, I have a prepared statement which I should like to read.

MR. DAVIS: Mr. Chairman, I do not wish to be contentious, but I would like to enter the City's objection again to this form of testimony. The last gentleman gave me a copy of his, which assisted me materially in cross-examining him and in objecting to other material, but I can not see or appreciate the position we are in. The Government says, "We didn't call this witness." I didn't call him. Who is sponsoring him, who is vouching for him? I speak legally, of course.

CHAIRMAN WILSON: It appears from statement of Government Counsel and the witness himself that he is representing the State of Nebraska, who is certainly an interested party in this proceeding.

MR. DAVIS: Right. Now, who is going to represent Nebraska in conducting this examination?

MR. EDELMAN: If no one else will, I will, Mr. Chairman.

MR. DAVIS: All right.

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Mr. Steen, are you familiar with the recreational needs of the State of Nebraska?

A. Reasonably well, yes, sir.

Q. Could you tell us something about those needs as they relate to the Missouri River?

A. Yes. I have a prepared statement which I should like to read.

CHAIRMAN WILSON: Well, I think that Mr. Steen may be permitted to read his statement. And as I stated with reference to the previous witness, if counsel for any of the other parties feels that the statement is going out of bounds, he will be privileged to interrupt and interpose an objection and the Board will take the evidence subject to the objection and reserving the ruling of the Board on the weight to be given the evidence after it is all in.

With that understanding, Mr. Steen may proceed.

THE WITNESS: Pollution of the Missouri River is a matter of major concern to the State of Nebraska in all water use fields. The water flow of this river exceeds that of all other Nebraska streams combined. Moreover, the Missouri River is important to more of our citizens than all other streams combined. The Game, Forestation and Parks Commission is that unit of State Government to which the State law assigns the duty as well as the authority to protect, preserve, and enhance the wild life resources, the state park system, and incidental recreational assets of our state. Legislation which greatly extends our responsibility with respect to the regulation and enhancement of pleasure boating is due for final action by the Nebraska Unicameral this week.

One-third of our people live in the 14 counties that front on the Missouri River and two-thirds of our citizens live in the eastern one-fourth of Nebraska. The Missouri River is the only large water presently in existence that lies within easy driving distance of all these people. Consequently, its significance in the field of outdoor recreation is high; in fact, the size and location of the Missouri River make it the most important recreational water in our state.

The potential of this river may be greatly enhanced by stream channel improvements and upstream impoundments that stabilize the flow, improve the channel, and reduce turbidity. It would be difficult to overstate the beneficial effects of the works of the Crops of Engineers upon the recreational potential of the Missouri River. It is unthinkable that this potential will be impaired or nullified by pollution.

There are 404 miles of the Missouri River shoreline on the Nebraska side, nearly all of which is suitable for some type of recreation. Increased opportunity for pleasure boating, water skiing, fishing, and all other forms of water recreation is urgently needed in Eastern Nebraska.

The Commission is currently conducting a study of Missouri River access opportunities and will initiate development of access areas this year. This activity, and other development work which is contemplated for future years, is scheduled on the premise that we will have a clean river available for the enjoyment and use of our citizens and our guests.

Many complaints are received by our agency each year from hunters, fishermen and boaters concerning the pollution now present in the river. Many commercial fishermen complain that their fish are unpalatable due to taste resulting from polluted water. Raw sewage solids and packinghouse wastes are often collected on and in their hoop and trammel nets. This latter experience is most prevalent in the stretch of river immediately below Sioux City.

Sport anglers complain about the accumulation of waste on their fishing lines and other gear used in the water, and hunters about the defilement of decoys, anchor ropes and retriever dogs. As with the commercial fishermen, most of the pollution encountered by sportsmen is encountered downstream from Sioux City.

The economic significance of commercial fishing is considerable, but not by comparison with the economy of outdoor recreation. The latter is estimated at eighty million dollars annually in Nebraska, of which forty million dollars is attributed to fishing and hunting alone.

In the next 10 years our agency will expend thirty million dollars or more in the preservation and development of the wild life resources, park system and outdoor recreational facilities of our state. In view of the fact that water is far more important than land as a recreational outlet, and since the Missouri River is our most important water potential, it is self evident a substantial share of our expenditures will involve the recreational development of this river. From our point of view, therefore, abatement of pollution on the Missouri River is a must. Recreational use is one of the major benefits of the Missouri River to our people. Their right, riparian and otherwise, to water suitable and safe for recreational use is defensible under state and federal law. As and when necessary, the Nebraska Game, Forestation and Parks Commission intends to employ every available means in defense of that right.

That is the statement.

CHAIRMAN WILSON: Any questions, Mr. Davis?

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Steen, is your department the one to which commercial fishermen make their reports of catches?

A. Yes.

Q. Do you have with you today the figures for the last counting period of whatever you used?

A. No, I do not.

Q. Would you give us an estimate as to the total amount of fish taken from the Missouri River between here and Omaha sold commercially?

A. I do not have those figures available at the moment, sir.

Q. Well, now, Mr. Steen, your department has been aware for some time as to the date of this hearing?

A. Yes, sir.

Q. Your representatives have interviewed the commercial fishermen in the Sioux City area, have they not, within the past two weeks?

A. Beg your pardon?

Q. Your representatives have interviewed the commercial fishermen in this area?

A. Not much commercial fishing under way yet.

Q. My question was during the last two weeks your representatives have interviewed commercial fishermen in the immediate Sioux City area, is that correct?

A. I interviewed some this morning myself, sir.

Q. All right. And your representatives have done so in the past several weeks?

A. No, because no commercial fishing of consequence is under way as yet on the river.

Q. Do you know if anyone representing the United States Government has interviewed them within the past several weeks?

A. I am not aware of any, sir.

Q. Do you plan to have them in attendance here to testify concerning their experiences?

A. What was the question?

MR. DAVIS: Read it.

(Question read.)

A. I do not, sir.

Q. (By Mr. Davis.) Well, now, they are within 15 minutes of this courtroom, are they not?

A. Yes, sir, some of them are.

Q. And you yourself have talked with some of them as recently as today?

A. Yes, sir.

Q. And you still say that within the last month, shall we say, that no one from your department has talked with these gentlemen about appearing here and testifying?

A. No one from my department, sir.

Q. All right. Has anybody from any department?

A. I do not know, sir. I can not answer that question.

Q. In your prepared statement you say the economic significance of commercial fishing is considerable?

A. That is right.

Q. But you don't have the figures for the amount of fish that were taken by commercial fishermen for the past year available to you?

A. Yes, we have it available. It can be provided.

Q. But you are here now?

A. That is right.

Q. Are they with you here in court, sir?

A. Sir?

Q. Do you have them with you now?

A. No, I do not.

MR. DAVIS: At this time the city moves to strike from the testimony as it appears on page 2 of the prepared statement of this witness the phrase "The economic significance of commercial fishing is considerable" and the matters that follow in that paragraph for the reason that it represents a conclusion and opinion of this witness and he had not been shown qualified to testify concerning them, I might say to the Board and Mr. Chairman, I have no objection to his figures if he had them available.

At the same time I move to strike the phrase "Many complaints are received by our agency each year from hunters, fishermen and boaters concerning the pollution now present in the river" for the simple reason that it constitutes hearsay and there is no showing that this witness is qualified to testify concerning it.

And I particularly urge to you now and move to strike the phrase "Many commercial fishermen complain that their fish are unpalatable due to taste resulting from polluted water", and so forth, and the balance of that paragraph, for the reason that that constitutes hearsay as it appears in this statement and the witness doesn't deny that the actual fishermen who may be involved are available to him and available to the power of subpoena of you, sir, and that the testimony as he has offered it, therefore, is incompetent, irrelevant and immaterial to any issues in this matter.

CHAIRMAN WILSON: Motion is denied and the evidence is received subject to the motion and the objection and on the reservation ruling as previously stated as to the weight to be given the evidence.

Any more questions of Mr. Steen?

MR. DAVIS: None by me.

MR. STEIN: No.

CHAIRMAN WILSON: Any members of the Board?

That is all.

MR. SAMSON: Excuse me.

CHAIRMAN WILSON: Oh, yes.

MR. SAMSON: I just have one question.

Q. (By Mr. Samson.) Do you have readily available approximately the percent of licenses issued in the State of Nebraska that come out of the tier of counties that border on the Missouri River in Nebraska?

A. The counties that border on the river?

Q. Yes, and in the direct proximity in the first or second tier?

A. Roughly 35 percent.

Q. In dollars and cents do you know how much that would amount to?

A. About $450,000.

MR. SAMSON: Thank you.

CHAIRMAN WILSON: Do you have any more questions?

Q. (By Mr. Kurylo.) You mentioned, Mr. Steen, that 404 miles of the Missouri borders on Nebraska?

A. Yes, that is right.

Q. Can you indicate the extent to which, in your opinion, that mileage borders polluted waters?

A. Well, our experience indicates pollution in the river below Sioux City and below Omaha, that is substantial pollution, pollution of the kind that leads to complaints by the commercial and by the people who use the river for recreational purposes. I might add that we have the complaints of record in writing in our office, letters; we have many oral complaints also.

MR. KELLY: I can't hear you.

MR. DAVIS: Just a second, Mr. Kurylo. May I hear the last sentence? I did not hear him.

A. I said we have complaints of record in our office in writing in letters and we have many oral complaints from sportsmen and commercial fishermen made to our officers who work on the river.

MR. DAVIS: I would like to have the record--excuse me, sir, I didn't mean to interrupt you.

A. This, as I say, relates to the area immediately below Sioux City and immediately below Omaha in particular.

Q. (By Mr. Davis.) But not north of Omaha?

A. No, the further down river we go the less complaint we have, Mr. Davis.

MR. DAVIS: Thank you.

I move to strike his answer, Mr. Chairman, concerning complaints, et cetera, on file for the reason it constitutes hearsay evidence.

Q. (By Mr. Kurylo.) How far below Sioux City would you say--

CHAIRMAN WILSON: Just a minute. Pardon me, Mr. Kurylo. Counsel interjected an objection and motion to strike. I will make the same ruling on that as on the previous motion.

MR. EDELMAN: Mr. Chairman, may I point out for the consideration of the Board that the answer involved material received by Mr. Steen in his official capacity, they are a part of his official records, and I do not think that they fall into the category of hearsay evidence. They are in the nature of an official report by a public official under authority of law. And I ask that the Board take that factor into consideration in evaluating his testimony.

CHAIRMAN WILSON: Well, the Board will give consideration to that as well as anything else bearing on the weight to be given the evidence.

You had a question, Mr. Kurylo?

MR. KURYLO: Yes.

Q. (By Mr. Kurylo.) You indicated that you have received complaints from below Sioux City but not as far down as Omaha. How far will it extend, in your opinion?

A. The complaints are confined primarily to the first 20 to 30 miles of river below this city.

Q. (By Chairman Wilson.) How far was that?

A. Twenty to thirty miles below this city. We have very little complaint below that point.

Q. That is 20 to 30 miles below Sioux City?

A. That is right.

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Steen.

(Witness excused.)

MR. EDELMAN: The Government now calls Mr. R. J. Pafford, Jr.

ROBERT J. PAFFORD, JR.

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Mr. Pafford, I remind you that you were sworn earlier and you are now under oath.

A. Yes, that is right.

Q. Will you identify yourself for the reporter, please?

A. My name is Robert J. Pafford, Jr. I am a civilian engineer with the U. S. Army Engineer Division Office at Omaha, Nebraska.

Q. Can you describe the nature of your employment, Mr. Pafford?

A. I am employed as Chief of the Planning and Reports Branch and Chief of the Reservoir Control Center in the Missouri River division office. I am here primarily in that latter capacity today.

Q. Can you tell us about the contemplated program of the Federal Government for regulation of the flow of the Missouri River during navigation and non-navigation seasons?

A. Yes, sir. I have a statement here which I would like to read which covers the broad picture on the proposals of the Federal Government.

Q. If that statement is responsive to my question and is like you would testify to in answer to the question, I ask permission of the Board to have him read it instead of giving it from his recollection.

CHAIRMAN WILSON: Do I understand that this witness is a Government witness?

MR. EDELMAN: Yes, sir. He has prepared his answer in writing and asks permission of the Board to read it.

CHAIRMAN WILSON: Very well.

MR. EDELMAN: In answer to the question.

CHAIRMAN WILSON: You may proceed, Mr. Pafford. Do you have an extra copy of your statement that you can give to opposing counsel?

THE WITNESS: Yes, I do have.

CHAIRMAN WILSON: So he can check it for cross-examination.

Q. (By Mr. Edelman.) Before the witness starts, if you are going to read this, Mr. Pafford, may I ask that you include a discussion of the procedure you use in determining and developing the flow regulation program and its relation to pollution abatement.

A. Yes, sir. That is the purpose for which I prepared the statement. I will read the statement now.

The Flood Control Act of 1944, that is Public Law 534, Seventy-eighth Congress, approved a general comprehensive plan for flood control and other purposes in the Missouri River Basin which, among other features, includes a series of six major multiple-purpose dams and reservoirs on the main stem of the Missouri River in Montana, North and South Dakota, and northern Nebraska. The U. S. Army Corps of Engineers is the Federal construction and operation agency for these six projects.

The sites of all six of these main-stem dams and reservoirs are located on the main stem of the Missouri River upstream from Sioux City, Iowa. Four of these main stem projects are now in actual initial operation. These are Fort Peck in Montana, Garrison in North Dakota, Fort Randall in South Dakota, and Gavins Point on the Nebraska-South Dakota boundary. The other two main-stem projects, Oahe in South and North Dakota and Big Bend in South Dakota, are under construction. These projects will regulate almost the entire flow of the Missouri River at Sioux City.

These six main stem Missouri River projects will be operated as a multiple-purpose system. The primary purposes for which these reservoirs are to be operated are flood control, irrigation, navigation and hydroelectric power. Actual operation of the reservoirs since 1954, when Fort Randall and Fort Peck were first teamed up in initial main stem system operation, has conformed to these operational objectives. Our operation planning studies which have been made for conditions anticipated as far ahead as the year 2000 A.D., and later, are based on continued operation in this manner.

Each year since 1954, in actual operations, advanced operating plans have been drafted up by the Reservoir Control Center, reviewed and approved by a special Coordinating Committee on Missouri River Main Stem Reservoir Operations, and then carried out in detail through day-to-day scheduling of water releases and power generation through the Reservoir Control Center. The Coordinating Committee is now composed of official representatives of eight Federal agencies and nine Missouri Basin states. The Reservoir Control Center is a special establishment in the U. S. Army Engineer Division, Missouri River, office in Omaha, Nebraska.

The procedure in all operation planning studies since 1943, and in actual operations since 1954, provides for regulation of flows of the Missouri River with the main stem reservoirs in the following manner.

(a) Storage space is reserved in each major reservoir in the system for the control of floods, and is actually used as required for that purpose.

(b) Multiple-purpose conservation storage capacity in the reservoirs beneath the flood control space allocations is used to control the flow of the Missouri River from the basin above Sioux City: First, to supply irrigation and other beneficial consumptive uses in upstream areas; second, to maintain sufficient flows for minimum water supply requirements on the river; and then the water remaining after the foregoing requirements have been met is regulated so that the outflow from Gavins Point, the lowermost reservoir in the system, adequately supplies the seasonal requirements of navigation on the Missouri River between Sioux City and the mouth. The reservoir system is regulated internally, and some adjustments are made in outflow from the system, to provide for generation of the maximum amount of hydroelectric power consistent with the preceding requirements. Other functions, such as recreation and fish and wildlife, are also a definite factor in main stem reservoir operations but lower in priority.

(c) Certain minimum pool levels are maintained behind each dam to provide minimum hydraulic head for power generation and irrigation diversion, and assured minimum pools for recreation, fish and wildlife, and sediment retention.

Actual operation of the Missouri River main stem reservoirs in the period 1954 through 1958 has provided a characteristic seasonal pattern of discharges in the Missouri River at Sioux City, Iowa. During the navigation season, which normally will extend from late March to late November but which has been shortened by one to two months in some years, discharges at Sioux City have normally been maintained in the 25,000 cubic feet per second to 33,000 cubic feet per second range.

Q. (By Mr. Samson.) Would you mention that over again?

A. During the navigation season discharges at Sioux City normally are maintained in the 25,000 to 33,000 cubic feet per second range. That season normally would be eight months long, from spring till fall, but has of necessity, because of water shortages, been shortened by one to two months these last five years. During the non-navigation or winter season, discharges at Sioux City in the last five years have ordinarily been maintained within the range of 8,000 to 12,000 cubic feet per second. It should be noted that these winter discharges the past five years at Sioux City have been maintained some 2,000 to 3,000 cubic feet per second higher, on the average, than would be necessary in the future, after, say, about four or five years. This higher level has been necessitated by system power operations pending completion of all six power plants, and by present-day interim discharge requirements for water supply at and below Kansas City, Missouri. The Coordinating Committee on main stem operations and the Reservoir Control Center have agreed to continue the interim supplementary releases for downstream water supply purposes only for a reasonable period consistent with reasonable progress on industrial waste control and urban sewage treatment works. There have been occasional variations for several days at a time outside of the flow ranges at Sioux City that I have mentioned, usually as flows have varied unexpectedly from the tributary streams which enter the Missouri River between Gavins Point Dam and Sioux City, or due to ice formation and breakup on this reach of the Missouri River.

You asked about our long range plans?

Q (By Mr. Edelman.) Yes.

A Numerous long range operational planning studies for the main stem reservoir system have been made in both the Corps of Engineers' Omaha District Office and in the Division Office in the Reservoir Control Center. I have participated responsibly in all of these studies personally. Many of these studies have been performed in cooperation with other Federal agencies having responsibilities concerned with the Missouri River and with officials of the states involved. The studies included in the Missouri Basin Inter-Agency Committee's 1951 report on Adequacy of Flows in the Missouri River are an example. All of these studies are premised on releases averaging 25,000 cubic feet per second to 35,000 cubic feet per second from the main stem system at Sioux City during the navigation season, under normal hydrologic conditions; and controlled discharges at Sioux City ranging from 10,000 cubic feet per second to 15,000 cubic feet per second in the winter non-navigation season in years of normal precipitation and runoff, to as low as the 5,000 per cubic feet per second range in dry years and droughts when the natural water supply in the main stem reservoirs may be very deficient. A release rate of 15,000 cubic feet per second from Gavins Point is established as the maximum safe rate under winter ice conditions.

The general patterning of discharges in the Missouri River at Sioux City by the main stem reservoir system, as I have described, is in compliance with the basic project authorization as interpreted by the Chief of Engineers. Also it conforms to the basic general policy of the Corps of Engineers that low flow regulation for sewage and industrial waste dilution generally should not be used as a substitute for treatment works.

That completes my prepared statement, sir.

Q Mr. Pafford, as I understand your testimony, the level of flow that is now being maintained in the Missouri River past Sioux City, that is in the range of 25,000 to 33,000 cubic feet per second in navigation season and 8,000 to 12,000 cubic feet per second in the non-navigation season, is substantially all the water that is going to be available at Sioux City for considerable time to come?

A. Those flow rates we have found the last five years are in the initial phases of filling this great reservoir system up the basin. We can't predict the weather, but our filling schedules predicated on normal weather would indicate those would prevail in that range for at least another five years until we get the system full. Then it depends on the weather, the year-to-year runoff, what we do after that, except that the winter discharges can not exceed 15,000 cubic feet per second, it isn't safe under ice.

Q. You indicate that whatever water is available you do not intend to make available for the purpose of sewage dilution?

A. That has been--

MR. DAVIS: That question is objected to as a misstatement of the testimony. While it may be material, I object to the question as improper in form.

MR. EDELMAN: I will rephrase the question, if you object to the form.

Q. (By Mr. Edelman.) As I understood your testimony, you indicated it was the basic general policy of the Corps of Engineers that low flow regulation for sewage and industrial waste dilution would not be used as a substitute for treatment works?

A. That is correct. That is the planning policy of the Corps of Engineers.

MR. EDELMAN: That is all, Mr. Chairman.

CHAIRMAN WILSON: Have you any questions, Mr. Davis?

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Pafford, what has been the average flow from late March to late November actually?

A. Within the last five years you mean?

Q. Yes, sir.

A. It has varied month to month, but practically always within that range of 25,000 to 33,000 cubic feet per second that I mentioned. It is usually nearer 25,000 in May and June, the early part of the year, and nearer 30,000 or 33,000 in September and October, late in the year.

Q. Now, the long range plan that you speak of or studies are to keep it at about that for those months?

A. Frankly, sir, in an average condition after irrigation programs that are part of this development have developed in the upper basin after 20 or 30 years, that is all the water there is going to be.

Q. So that it would be near 25,000 in the first part of the summer months and then up to 33,000 in the latter part of the summer, is that correct?

A. That would be the general pattern, yes, sir.

Q. And not ever to exceed 15,000 in the winter?

A. The engineering studies we have made indicate that that is the maximum release rate that would be safe under winter ice conditions immediately downstream from Gavins Point Dam.

Q. Your work with the engineers' office is primarily with this reservoir control, I take it?

A. I have two assignments, one in charge of the Planning and Reports Branch, which is concerned with preauthorization project planning and economic evaluation of all projects, also with hydraulic design of structures as well as river works. The other one is as Chief of the Reservoir Control Center, which is charged with scheduling the operation of these reservoirs.

Q. Do you have anything to do with the planning of any projects, for example, having to do with the Sioux City Air Base?

A. With which? I didn't get that.

Q. The Sioux City Air Base?

A. I am not concerned directly with any of our military activities and that would be a military activity.

Q. I see. So when you speak of projects you mean in connection with the dams?

A. I meant civil works projects of the Corps of Engineers, yes, sir, river and harbor improvements for flood control, navigation, power. But development of our internal water resources.

MR. DAVIS: No other questions, Mr. Chairman.

CHAIRMAN WILSON: Any other questions?

Members of the Board? Mr. Poole.

Q. (By Mr. Poole.) Perhaps I got it wrong in my notes, but I thought I understood you to say that some of your advanced planning had indicated the flow might drop to as low as 5,000 cubic feet per second during the winters of drought years?

A. That is correct, sir. We have a number of studies, long-range studies, that show in the case of a great drought like in the 1930's our water supply would be so deficient that during the winter months 5,000 cubic feet per second would be all the water there would be to release from the system.

Q. Well, then, we could not assume that this 8,000 to 12,000 or the maximum of 15,000 second feet you have mentioned for one of those is a firm figure?

A. That is a maximum and stated as such. The minimum is 5,000. The actual performance may be anywhere in between.

CHAIRMAN WILSON: Other questions?

MR. HERSHEY: I have one.

CHAIRMAN WILSON: Mr. Hershey.

Q. (By Mr. Hershey.) Mr. Pafford, during the last five years when these four reservoirs have been in operation would you say that the flow was greater or less in the Missouri River past Sioux City most of the time?

A. Greater or less than what?

Q. Than prior to that time.

A. The actual total volume of water going past Sioux City in the course of a year was less. The inflow to our reservoirs was subnormal and we were actually building up storage upstream. In the past, however, that water, a very great proportion of it, went through Sioux City either in a March or April rise, as we call it, or in a June rise, as we call it, and flushed down the river in two big flood waves and then it was dry in the latter part of the season, so the total volume of water in less than a year has been less than normal in the preceding era the last five years but it s seasonal distribution through the summer has been entirely changed.

Q. What I was trying to get at, most of the time the level of the river and the volume is higher or has been higher during the past five years than it was before that time during unregulated flow?

A. I couldn't--

Q. Let me put it this way. As you just indicated, prior to regulation most of the water went out very high and in large volume during two months, April and May, under unregulated conditions, but under regulated conditions, although you held some upstream, for the remainder of the year is your water level higher or lower?

A. Actually there are about three months involved. There are two rises, have been in nature on the river. One is called the March rise, although it runs from late March to early April, and the other one is called the June rise but it runs from late May to early July, involves a total of about three months that considerably more than half of the total water supply of the river went down the river. Now, that is distributed over a--well, in our actual operation it has been a six to seven month long season through the whole summer period.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: Yes, I have one.

Q. (By Mr. Kurylo.) If I understand, your concluding statement was to the effect that waste dilution should not be used as a pollution abatement measure in substitute for treatment works. Is that because there will not be water available to dilute the pollution?

A. Actually I stated that as a factual statement as to what the planning policies of the Corps of Engineers are. There may be other factors but my understanding of the primary purpose of that is, there are other uses for water which require maximum utilization both in quantity and quality of the river water we have in the United States.

Q. I don't know whether your answer is responsive to my question.

A. I am sorry.

Q. Yes. Is this policy based on a fact or a conclusion by the Corps of Engineers that on the Missouri River there will not be sufficient water to dilute pollution and to take care of other water requirements?

A. That is the way it applies to the Missouri River, although it is a nationwide policy applicable to all rivers. But that is the way it will apply on the Missouri River.

CHAIRMAN WILSON: Any other questions?

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Q. (By Chairman Wilson.) Well, then if I--

MR. DAVIS: Sorry, go ahead.

CHAIRMAN WILSON: No, go ahead.

MR. DAVIS: I just have a question that is pertinent to what Mr. Kurylo asked, if I may.

CHAIRMAN WILSON: Go ahead.

Q. (By Mr. Davis.) Mr. Pafford, do you know upon how many occasions the flow of the Missouri River has been regulated for the purpose of sewage and industrial waste dilution within, say, the last seven years?

A. I am not sure of the meaning of that word "regulated" in that question.

Q. Well, I use it in the same sense as you in your statement. You say that your discharges or your patterning of your discharges in the Missouri River "is in compliance with the basic project authorization as interpreted by the Chief of Engineers."

A. Right.

Q. "Also, it conforms to the basic general policy of the Corps of Engineers that low flow regulation for sewage and industrial waste dilution generally should not be used as a substitute for treatment works."

A. Regulation in that sense means patterning of the flow of a river. And to go back to your question, how many times in the last seven years have these reservoirs been used to regulate the flow for that purpose? Is that your question?

Q. Yes, sir.

A. Directly, for that question, none, sir. Indirectly, because of some taste problems in the State of Missouri below Kansas City due to chemical pollution, to try and alleviate the conditions down there as a temporary measure some additional water was sent down the river to dilute this taste substance that was in the river.

Q. That is the specific incident that I had in mind when I asked the question.

A. That operation--

Q. What year was that?

A. That problem was the worst--it was either the winter of 1955-'56 or '56-'57. The best I can recollect now I believe it was December 1955.

Q. And it had to do with the taste problems in the water at Lexington, Missouri?

A. There were several towns on the lower river.

Q. Below Kansas City?

A. Right.

Q. But the water has never been used for that purpose in connection with Omaha or Council Bluffs, has it?

A. To the best of my knowledge the problem has not come up there and the water has not been used for that purpose.

MR. DAVIS: No more questions.

Q. (By Chairman Wilson.) Mr. Pafford, if I understand you, the over-all operation of this system under which you store water in these reservoirs during the spring and early summer times of high runoff has enabled you to more or less work toward stabilization of the flow of the river and increase the flow in times when it used to be low in a state of nature?

A. That is correct.

Q. That is, you have spread out the peak flows so that the people downstream get the benefit of higher flows at times when naturally the river used to be low?

A. That is true with respect to the late summer and autumn season of the year, sir.

Q. Now will you tell us again the particular purposes under your multiple-purpose plan which benefit from that regulation of the water now?

A. The primary functions as we call them in planning, the primary purposes to be served that were used to justify the authorization of this project by Congress, were flood control, irrigation, navigation and hydroelectric power. In actual operation, even though it wasn't used in basic justification of the investment in the project, we do pay attention to water supply to the point of not interfering with it and making it any worse than it was before.

Q. Well, then, do you mean that if you were to let more water down for the purpose of sewage dilution and thereby relieving, to some extent, the necessity for sewage treatment, that it would be at the expense of these other purposes?

A. Yes, sir, the answer is yes.

CHAIRMAN WILSON: That is all.

MR. KURYLO: I have a question to follow up on that, sir.

Q. (By Mr. Kurylo.) If I may ask a question to follow up on this one. If you did do that, if on occasion you did increase the flow to dilute sewage, wouldn't it mean that you would have less water to accomplish that water and other purposes at other times during the same year?

A. It is hard to generalize on that, although I will say this: The water supply of the Missouri River Basin above Sioux City is definitely limited. We can control it with reservoirs but what we use for one purpose does not serve 100 percent the good of another purpose. There is competition for use of water among all the functions. And to that degree if more water is dedicated to one function there will be less service available for one of the other functions.

Q. Or for that function in the future?

A. That is correct.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: Mr. Chairman.

CHAIRMAN WILSON: Mr. Davis has some.

Q. (By Mr. Davis.) These summertime regulated flows now, how do they compare with the summer flows before the regulation went in in 1954?

A I have to give you two examples. Of course everybody knows that the climate, the weather, the rain and the flow of the Missouri River vary quite materially around here. But to give you two examples, a typical June before regulation in a normal year would have had a peak discharge of about 100,000 cubic feet per second here at Sioux City, a June rise, and it could have been 150,000 or it could have been 75,000, but a typical one would have had about 100,000. With these reservoirs it would be around 30,000. In other words, June would be reduced from 100,000 to 30,000, a typical case. A typical late August, September, early October period at Sioux City in nature would have had a discharge of somewhere in the range 10,000 to 20,000 cubic feet per second, say typical one would have been 15,000. It now will be in the order of thirty or thirty-five thousand cubic feet per second. Does that answer your question?

Q Yes, apparently. Now it is less in June and then in the late summer it is more than it used to be?

A That is correct.

Q How many billion gallons, if I mention the right figure, are included in the thirty thousand cubic feet or how could you describe it?

A Well, a cubic foot is equivalent of seven and a half gallons and you take thirty thousand cubic feet per second at seven and a half times thirty thousand every second. What would that be? Some 225,000.

Q I was hoping that some engineer here with a slide rule, not a lawyer, could arrive at it.

A Actually all of our measurements, sir, are volume measurements, usually are in terms of acre feet which is some 43,000 cubic feet and some 300,000 gallons, and 30,000 cubic feet per second would be the equivalent of 15,000 acre feet a day.

Q But if I need a ready conversion factor I can use seven and a half gallons per cubic foot, is that it?

A That is an approximation, but it is pretty close.

MR. DAVIS: Thank you, sir.

CHAIRMAN WILSON: Any other questions?

That is all.

(Witness excused.)

MR. STEIN: Sir, at this time we would again like to defer the Government's case. We understand that several representatives all representing the Izaak Walton League, four different parties, have consolidated their statements. I would like to point out that these people do represent parties to the hearing as provided for in the regulations, the official state agencies of Nebraska, Iowa and South Dakota. I understand that Mr. Story, who has been sworn in, will present a consolidated statement, if we may have Mr. Story.

CHAIRMAN WILSON: Do the Board Members concur in receiving the evidence?

Very well. Present it.

MR. STEIN: Mr. Story.

CHAIRMAN WILSON: Let the record show that the Board Members concur in receiving the statement of this witness as a representative of the Izaak Walton League of America.

A. H. STORY,

called as a witness on behalf of the State of Nebraska, being first duly sworn, testified as follows:

DIRECT TESTIMONY

MR. EDELMAN: Mr. Story, I remind you that you were sworn in earlier and you are under oath now. Will you identify yourself for the reporter?

THE WITNESS: I am A. H. Story, State President of the Nebraska Division Izaak Walton League.

MR. EDELMAN: And I understand you have a statement you wish to read with reference to the subject matter of this public hearing?

THE WITNESS: I have a statement I would like to read from the Nebraska Division. However, we would like also to leave the statements of the Iowa Division and also of the Dakota County Division with the Board for their records.

MR. DAVIS: That will be objected to, Mr. Chairman, on the basis that it does not give me an opportunity to cross-examine the writer of the statements.

MR. EDELMAN: The witness, Mr. Chairman, is asking for an opportunity to file written statements with the Board, which, under the Chairman's ruling as he has made it on other occasions, I understand the Board will take and weigh in the light of the circumstances.

MR. DAVIS: Well, now, I would imagine that this is a question of reoccurring. Would you like to approach it head-on now to afford me a chance to be heard?

CHAIRMAN WILSON: Apparently this witness has been following the suggestion of the Chairman that these parties who have common interests try to consolidate their statements.

Are the others who collaborated in preparing these statements here present?

THE WITNESS: Yes, sir, they are.

CHAIRMAN WILSON: Well, then, we will receive the statement from this witness and if it appears that it is important for purposes of cross-examination to call any of the others who have contributed to this statement, they may be called and we will receive the statement subject to the previous conditions as to any objections that may be made and reserving the ruling on the weight to be given to it as evidence.

MR. DAVIS: As I understand, this gentleman is now reading his own statement?

Q. (By Mr. Edelman.) Is that correct, Mr. Witness?

A. I am reading the Nebraska statement.

Q. And you have two additional statements that you wish to file for the record--

A. That is right.

Q. --from other persons?

A. That is right.

CHAIRMAN WILSON: You may proceed.

THE WITNESS: The Izaak Walton League of America, since its inception some 38 years ago, has led the nation's fight for clean waters through the prevention and abatement of water pollution. Not only in Nebraska, but all over the nation the various chapters and state divisions have led the way in countless pollution control advances. Even more important is the challenge facing us in the future as pollution spirals, communities expand and industry burgeons. Clean, usable water has become the basic limiting factor of almost every community in America. Water is one of our most important basic resources.

One of the objectives of this organization, and I am here as an official representative of the Nebraska Division, is that we should safeguard the public health and conserve life by elimination of pollution to our water resources. I would like to say to you that clean water is the basic ingredient of any and all defense programs because it is basic to the health of the people, to our industry, our agriculture, and every other element of our society. To go further, as a former Surgeon General of the United States Public Health Service said, and I quote, "The nation's health requires that water we use for drinking and domestic purposes, for raising crops and livestock and for recreation, be carefully safeguarded. Pollution from cities and industries is a constant threat which must be controlled if we are to maintain an adequate supply of clean, safe water."

Further in that connection, gentlemen, I would like to call your attention to this editorial which appeared recently in the Omaha World Herald. It is as follows--

MR. DAVIS: Now, that is objected to, Mr. Chairman, as hearsay, certainly, and I also object to everything this gentleman has said up to now, and to include this statement, as being irrelevant under your rules as was furnished me this morning from the Federal Register and as you advised us, and I move to strike the statement of the Surgeon General which was quoted.

CHAIRMAN WILSON: The objection will be noted. The motion is denied and the evidence will be received subject to the objection and to the previous conditions stated on the previous ruling.

Go ahead.

THE WITNESS: The editorial is as follows:

"If all the societies work together the Missouri River can be changed from an open sewer into a beautiful stream. With the new dams, sediment, which was once a natural blight, is no longer a problem. The water has become almost clear, except for sewage. The dams also have stabilized the river. Channel works downstream help to keep it in a fixed course. In many respects the new Missouri resembles, or without its burden of sewage would resemble, Germany's fabled Rhine. The Rhine rises in the Swiss Alps and the Missouri in the Rockies. Both flow for much of their length through the broad plains hemmed in by bluffs. Both have been stabilized and their channels 'corrected' by man.

"Europeans long ago met the threat of pollution, and the Rhine is reasonably pure. Along much of its length it is used by boats of all sizes and swimmers by the hundreds of thousands. The Missouri can become another Rhine with boating, swimming, better hunting and fishing for game fish, if it were cleaned up."

We in Nebraska are somewhat proud of the progress which has been made in the last few years of meeting the pollution problem. The first sewage disposal treating plant was established at Madison, Nebraska, in 1910, and since that time 182 new plants have been built, of which only three were built pursuant to court action. In the last few months, the City of Omaha voted a bond issue of $8,000,000 in the way of an initial step to clean up the Missouri River.

It can well be said that the pollution of the Missouri River, together with any other waterway, can be called a crime against nature and society.

In as far as the Missouri River is concerned, we might say that there are two forms of pollution that plague this stream. One is the municipal waste and the other is the industrial waste discharged by the plants and the factories.

The Missouri River is a stream of incredible filth. From Sioux City downward, the Missouri is the most polluted river. Sioux City, St. Joseph, and Kansas City, large metropolitan areas, spew their incredible filth into the Missouri.

The City of Sioux City, back in February of 1956, committed itself to having its sewer planning completed by January of 1957 and to have work under way by January of 1959. No progress has been made. The City of Omaha, as well as those smaller towns, such as Blair, Bellevue, and Tekamah, have either completed their plants or their plans are well advanced.

The Missouri River Basin is a dynamic growing area with expanding population and industry. The community of Sioux City should not be permitted, together with its industry, to pollute the Missouri River and endanger the health and jeopardize the recreational facilities thereof.

In closing let me say, as I have said before, that water is one of the nation's great natural resources. Without it we can not exist. Let us preserve it. The Missouri River, that magnificent waterway wandering through this green country, should not become choked with the refuse of civilization. There should be an immediate stop put to the millions of gallons of incompletely treated sewage and waste poured into this stream daily at Sioux City.

CHAIRMAN WILSON: Any questions?

MR. STEIN: None here.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Have you been in the courtroom this afternoon?

A. Yes, I have.

Q. Did you hear the testimony of the Nebraska men, the Director of the Water Department and the sewer man?

A. Yes, sir.

Q. In your statement you say that you and Nebraska are proud of your record of sewage disposal. Does that include pride over the fact that North Omaha's sewage is dumped into the river three miles above Council Bluffs intake?

A. I think you will find in my statement I said I was proud of the progress that we are making.

Q. I am asking you if you are proud of the present situation?

A. No, we are not proud of several situations.

Q. All right, in closing part of your statement, Mr. Story, you say that Sioux City, St. Joseph, and Kansas City are pouring "incredible filth" into the Missouri River. Why do you leave out Omaha?

A. Because Omaha is progressing. They are making an attempt to correct their situation.

Q. Do you have any idea as to what are the coliform quantities in your own city, Nebraska City, below Omaha now?

A. I am no technical scientist and biologist in any shape.

Q. When you speak of "incredible filth" you are not making it on your technical knowledge, are you?

A. Certainly not.

Q. So that you have no way of knowing what degree of pollution exists at these different cities that you have listed down the stream--

A. In a technical form, no.

Q. You what?

A. In a technical form, no.

Q. Right. So that when you use the words "incredible filth" that isn't based on any scientific count of the amount of it, is it?

A. That is right.

MR. DAVIS: At this time the City of Sioux City renews its motion to strike the testimony of this witness for the reason that it is irrelevant and immaterial to the issues before this Board, for the further reason it has now been affirmatively shown that this witness is not qualified to testify concerning the issues before the Board.

MR. STEIN: We have a question.

MR. EDELMAN: If the Chair please, may we ask the witness--

CHAIRMAN WILSON: Do you want to comment on the motion?

MR. EDELMAN: Not on the motion, Your Honor.

CHAIRMAN WILSON: Well, the motion is denied and the testimony will be received under the same conditions as stated on previous rulings.

MR. EDELMAN: Are you through, Mr. Davis?

CHAIRMAN WILSON: Do you have some further questions?

MR. EDELMAN: Yes, one question, Your Honor.

CROSS-EXAMINATION

BY MR. EDELMAN:

Q. Mr. Story, have you ever seen personally any of the sewage from the municipalities you mentioned?

A. Yes, I have.

Q. Will you describe them, where you saw them and when?

A. I have been below Sioux City boating and when I spoke of not speaking in a technical manner as to the count or whatever technical phrases might be used it isn't hard to--or it is hard to disapprove your eyesight when you see actual sewage floating down the stream. You don't have to be a scientist to know that that is pollution.

Q. Can you tell us some of the characteristics of this pollution as you observed it?

A. Well, the various types of pollution below Sioux City as I have observed are, as I have heard the gentleman say here today, of the domestic varieties, small piece of feces and such as that. I haven't been too aware of the industrial pollution. I would have to say that was from hearsay. I have been told that fishermen with their lines have found oils and fats on their lines. However, that is hearsay and I have not seen that evidence.

MR. EDELMAN: That is all.

MR. DAVIS: Move to strike the answer, Mr. Chairman, because he agreed that it is hearsay.

CHAIRMAN WILSON: Well, the Board will take that under advisement and give whatever weight to the testimony it may be worth.

MR. EDELMAN: We have no further questions, Mr. Chairman.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: No questions.

CHAIRMAN WILSON: Thank you.

(Witness excused.)

MR. EDELMAN: The Government would like to call Mr. Russell L. McKown. Is he present?

MR. DAVIS: Mr. Chairman, I would like to straighten out a misunderstanding before the witness is called to testify.

CHAIRMAN WILSON: Just a minute, Mr. Story. Counsel is making a statement.

MR. DAVIS: Have you filed two additional statements by other parties?

MR. STORY: Yes.

MR. DAVIS: With whom?

MR. STORY: I haven't filed them with anybody. That is the procedure I was going through now.

MR. DAVIS: I see. You are going to file them with the Board, is that correct?

MR. STORY: I filed copies, one copy of each, with the Secretary and I have a copy for you, if you wish.

MR. DAVIS: At this time--

CHAIRMAN WILSON: Now just a minute. Do I understand that this witness is filing some statement other than the statement which he read?

MR. EDELMAN: Yes.

MR. STORY: Yes, I--

CHAIRMAN WILSON: Or are you just filing the statement which you read?

MR. STORY: No, I am filing the statements from the Iowa Division and the Dakota County Chapter of Nebraska of which I spoke to you before.

CHAIRMAN WILSON: Well, those statements can not be received without further identification and I would suggest that if those who made the statements are here present that they had better read them themselves. I thought that they were simply concurring in the statement that you read. But if they have prepared additional statements and wish to have them submitted, they had better be read here in full by the authors.

MR. STORY: I am sorry, I had a misunderstanding there. I meant to impress upon you that I intended to read the Nebraska statement. However, the statement from the Iowa Division and also from the Dakota Chapter Division were to be placed on record.

CHAIRMAN WILSON: Well, they will have to be read if you want them to be considered at all.

MR. JONES: Do they cover points not covered in yours?

CHAIRMAN WILSON: And they will be given whatever consideration the Board thinks relevant, and they will have to be read if for no other reason than to give counsel for all interested parties an opportunity of cross-examination.

MR. JONES: If these other reports are duplications of his, I see no reason for them even to be filed with the Board.

CHAIRMAN WILSON: Pardon?

MR. JONES: If these other reports are duplications of his, I see no reason for them even to be filed with the Board.

CHAIRMAN WILSON: Well, we couldn't consider them simply on filing them without giving copies to counsel and giving them an opportunity for cross-examination, unless counsel for all parties are willing to take a look at these statements and say that they may be considered by filing subject to their objections--

MR. STORY: These parties merely wanted these placed on record in the interest of--

MR. EDELMAN: Mr. Chairman, Mr. Dale Voss of Dakota County has told me that he wishes to withdraw his statement and asked me to let the record show that he concurs in the statement made by Mr. Story. Now, that removes one of them, as I understand it.

Is that acceptable to Mr. Davis, the statement of concurrence by Dakota County?

MR. DAVIS: Yes, subject to the objection we made to the other gentleman.

CHAIRMAN WILSON: Who was the representative?

MR. EDELMAN: Mr. Dale Voss, Mr. Chairman.

CHAIRMAN WILSON: Was he sworn?

MR. EDELMAN: No, he was not.

MR. VOSS: Yes, I was sworn.

MR. EDELMAN: You were sworn? I am sorry.

CHAIRMAN WILSON: Give your full name to the reporter so that we will know you are appearing here now.

MR. VOSS: Dale Voss, Jr. And I had a statement for Dakota County, Nebraska, Izaak Walton Chapter, and I am going to withdraw it and say that I concur with Mr. Story's statement completely and will not have this statement entered.

CHAIRMAN WILSON: You may withdraw the statement and while you are here then I will ask counsel, Mr. Davis or any other counsel for the interested parties, if they wish to ask this witness any questions?

MR. EDELMAN: No questions, Your Honor.

CHAIRMAN WILSON: Very well.

MR. EDELMAN: I would like to call Mr. Rogers to the stand.

CHAIRMAN WILSON: Now, it is understood there are no other statements filed or received?

MR. EDELMAN: Mr. Rogers is the author of one of the other statements. I understand he wants to.

MR. ROGERS: President of the Iowa Division.

MR. EDELMAN: Will you identify yourself to the reporter.

MR. ROGERS: J. Justin Rogers.

CHAIRMAN WILSON: Take the stand.

MR. EDELMAN: Take the stand over there.

J. JUSTIN ROGERS,

called as a witness on behalf of the State of Iowa, being first duly sworn, testified as follows:

DIRECT TESTIMONY

MR. EDELMAN: You were sworn earlier, Mr. Rogers?

THE WITNESS: Yes.

MR. EDELMAN: You are under oath now? Will you identify yourself to the reporter?

THE WITNESS: J. Justin Rogers.

CHAIRMAN WILSON: What was that name?

THE WITNESS: J. Justin Rogers.

MR. EDELMAN: What do you wish to say with respect to the statement that Mr. Story wanted to submit for you?

CHAIRMAN WILSON: Whom does this witness represent?

MR. EDELMAN: He is from Iowa, I understand.

THE WITNESS: I am the State President of the Iowa Division of the Izaak Walton League.

CHAIRMAN WILSON: Very well.

THE WITNESS: Directed to the United States Department of Health, Education and Welfare. Subject: Abatement of pollution in the Missouri River pursuant to Public Law 660. Place: Sioux City, Iowa. Time: March 23, 1959. Organization: Iowa Division of the Izaak Walton League of America--

MR. EDELMAN: If I may interrupt this witness, do you intend to read your statement, Mr. Rogers?

THE WITNESS: Well--

MR. EDELMAN: Do you have anything to add to what was said by Mr. Story?

THE WITNESS: It would be pretty hard extemporaneous to--

MR. EDELMAN: If the Board wishes to hear it, the Government has no objection.

CHAIRMAN WILSON: Very well. The Board has already agreed to receive these statements, I believe? They will be received for whatever they may be worth and subject to any objections that may be interposed.

MR. DAVIS: Which I now interpose on the basis that it is irrelevant and immaterial. I don't believe that it actually has any bearing on the issues here on this witness's testimony.

CHAIRMAN WILSON: It seems to me to be of a similar nature to the previous statement made and it will be received under the same conditions.

THE WITNESS: I am J. Justin Rogers. I am State President of the Iowa Division, a sub-division of the Izaak Walton League of America, organized in Iowa as a non-profit scientific and educational organization. The League concerns itself primarily with natural resource conservation for the benefit of all citizens in Iowa and the nation.

The Iowa Division of the League concurs in the stated water use policies as recommended by its national organization and thus recognized human use of water as a rightful prior use. Human use implies municipal, agricultural, industrial and recreational utilization, with water for drinking purposes to be given first consideration. We therefore wish to be considered as proponents of the enforcement of existing pollution control laws, both Federal and State, which do prohibit pollution of the Missouri River by an individual, group of individuals, industry, corporation or municipality.

It is not my intention to make reference to the integrity or the ability of any person, municipal government, state or federal agency connected with this hearing. The statements contained herein are true to the best of my knowledge and judgment and will primarily concern outdoor recreational use of the Missouri River. By recreational use we refer to boating, hunting, fishing, swimming, camping and other aesthetic, health and character-building values enjoyed by society where quantity and quality of water permits.

The Missouri River has the greatest recreational potential of any area in western Iowa and eastern Nebraska, and with the shorter work week and rapid population growth we are faced with an ever-increasing demand for recreational space and facilities, especially those connected with water use. We are only kidding ourselves if we continue to pretend that we can maintain the useability of the Missouri River for all legitimate needs with the present "load it to the hilt" with pollution philosophy.

The American people and Iowa people are no exception, have been and are being called upon to spend billions of dollars in the development of the Missouri River for multiple use, which includes power generation, navigation, flood prevention and human use, including recreation. We have all recognized the need of reservoir development for power generation, navigation and flood prevention. We recognize the need of piling and revetments to straighten and deepen the river for navigation purposes and to protect individually-owned farm land from damage by the river. We recognize the need of costly agricultural levees built with tax dollars to protect farm land from flooding in times of high water, but what are we doing for outdoor recreation?

It is not a question of fish or progress; it is a question of people and progress. It is not a question of do we use the water from the Missouri River for human use; it is a question of can we safely use the water for human use? Federal and State agencies have made great strides in providing clean water and suitable facilities for outdoor recreation at the various reservoir sites in the states north and west of Sioux City, but we do not feel that we will have done enough until every industry and municipality has accepted the responsibility of treating their sewage in a manner that is and will be acceptable to present and future water use standards. Its water use policy is representative of the dignity of a society.

It seems that we must conclude that a river, the Missouri, belongs to the people and that they do have a vested right to use it in a lawful manner at a time and place of their choosing.

We believe the apparent policy of this urban and industrial area of dumping its full load of sewage and other wastes in the Missouri River and its tributaries is a deterrent to human use of the river's water and does prohibit safe consumptive and certain nonconsumptive use of such water, and thus we believe this apparent policy is contrary to the requirements of present federal and state pollution laws.

Like many other communities in the Missouri Valley, Sioux City's present position is, we believe, the result of a backlog of responsibility wherein it is apparent that as an urban and industrial area it has not accepted its moral obligation to treat its sewage abatement obligations in an acceptable manner.

MR. EDELMAN: We have no questions.

CHAIRMAN WILSON: Any questions?

MR. DAVIS: No, sir.

CHAIRMAN WILSON: Members of the Board?

I would just like to ask Mr. Rogers one question.

Q. (By Chairman Wilson.) Have you made any personal observations of conditions in this river?

A. Yes.

Q. When?

A. This morning.

Q. Other than that have you?

A. Yes, I have been downstream in the past, I have had various gentlemen from this area talk to me about the pollution of the river in this area. I was down here to, I believe, the Perry sewer opening this morning. I had firsthand knowledge right there.

Q. Where is your home?

A. Spirit Lake, Iowa.

Q. But you don't make use of this river yourself?

A. This river here belongs to the people of the United States of America.

Q. Well, I am simply asking you--

A. And I think it has the greatest potential of recreation of any place that we have in Iowa, and there might be a possibility that I would want to use it.

CHAIRMAN WILSON: Any other questions?

That is all.

Q. (By Mr. Samson.) Let me ask you, what have you observed in the river? That is, have you observed anything in the way of pollution in the river while you have been on it?

A. This morning we were watching there and all at once it looked like crankcase oil, somebody had evidently put a shot of it in, because it was floating on top and it was dark, looked like crankcase oil.

CHAIRMAN WILSON: Any other questions?

That is all.

(Witness excused.)

CHAIRMAN WILSON: Now I see it is nearly 5 o'clock. Is there any other witness we could dispose of shortly?

MR. STEIN: Yes, we have one more witness who has been sworn already and we should, at least the Government's presentation will be very short. He is a Government witness.

CHAIRMAN WILSON: Very well.

MR. EDELMAN: Mr. Russell L. McKown.

RUSSELL L. MC KOWN,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. I understand you were sworn earlier, Mr. McKown?

A. Yes, sir.

Q. I remind you that you are still under oath. I will ask that you identify yourself to the reporter.

A. My name is Russell L. McKown, M-c-K-o-w-n. I am a Recreation Planner with the National Park Service, Region Two, Omaha.

MR. EDELMAN: Mr. Chairman, there are two ways of approaching this witness. One, I can ask him a series of questions, or, two, I can ask him to read a statement which he has prepared as his testimony and which he would give me in response to the questions.

May I ask, Mr. Davis, if there will be any objection if I ask him to read a statement?

MR. DAVIS: There will.

Q. (By Mr. Edelman.) In that case, I will ask him to read his statement.

MR. DAVIS: That is objected to, Mr. Chairman, for the reason that it doesn't constitute proper procedure. I don't think it falls within either the rules that you announced this morning briefly or the Federal Register or the Administrative Procedures Act, which I think probably governs all of us, and I think it is improper in form. I don't think it saves a nickel's worth of time.

CHAIRMAN WILSON: As long as counsel has called this witness for the Government and indicated that he could elicit his testimony by questions and answers, I think he had better follow that method. So if you will, proceed along that line.

MR. EDELMAN: Just for the correction of the record, I would like to indicate that the Government does not agree with the counsel for Sioux City that this proceeding is governed by the Administrative Procedures Act.

Q. (By Mr. Edelman.) Can you tell us how long you have been employed by the National Park Service at Omaha, Mr. McKown?

A. I have been a member of the Region Two office for thirteen years and all of that time have been assigned to the program of recreation development in connection with the Missouri River Basin project.

Q. Do you have a personal interest in the area?

A. Well, I happen to have been born and raised in Davenport, Iowa.

Q. Can you tell us, Mr. McKown, the basis of the National Park Service's interest in state park and recreation programs?

A. The National Park Service, which I represent, from its earliest years has been interested in the conservation of recreation resources throughout the country. Through the Park, Parkway and Recreational Study Act of 1936 we are authorized and given the responsibility of assisting the states with their park and recreation programs. This has resulted in our service working with the states for a number of years, analyzing state park needs and assisting when requested in their park planning programs. Basically the National Park Service is anxious to work with the states and all other interested agencies, at whatever level of government, toward a balanced park and recreation plan to meet public requirements and it is in this context that I appear today.

Q. Can you tell us, Mr. McKown, in general what part major streams and rivers such as the Missouri have made as recreational outlets in this country?

A. In general, across the country, major streams and rivers within recent decades have not played the part they could as recreation outlets, largely because many have become unattractive from flood action, silt or pollution.

During prehistoric times and the early exploration and settlement of the country, the Missouri River played an important part. Now as the need for wholesome outdoor recreation opportunities is growing by leaps and bounds it can and should play an important role still, the more so in this stretch from Gavins Point to Omaha because it lies in an area of higher population concentration not naturally blessed with lakes.

Since the inception of the Missouri Basin project, we in Nebraska and Iowa have seen the river greatly changed. Flood action has been materially reduced and, along with it, the silt load as main stem reservoirs upstream are completed. The river down here as a result is more attractive. No longer can it be called the "Big Muddy," at least in the stretch between Gavins Point and Omaha. Already it is more attractive for recreation and is receiving increased use for boating. There remains, however, the matter of pollution, which is inimical to recreation enjoyment, esthetically as well as from the health standpoint. With the stream otherwise improved it would certainly negate this accomplishment if the stream were polluted by emptying therein raw sewage and industrial waste materials.

Recreation fundamentally is done for relaxation and for enjoyment. Clearly it should be done in attractive surroundings, not in spite of unattractive conditions.

For a stream to be usable for recreation it must contain clear water of unpolluted condition. Generally there is a detrimental effect of pollution on recreation. It makes swimming, boating, and fishing unpleasant and sometimes impossible, and esthetically results in a very unattractive stream.

From Gavins Point to Omaha the Missouri River is an attractive stream and has important potentialities for recreation development. Broad park and recreation studies were carried out in the last few years, jointly with the states and other federal agencies, covering the Missouri River Basin. These studies point to the Omaha-Council Bluffs population and concentrations in eastern Nebraska and western Iowa as most lacking in natural recreation opportunities, particularly related to water. This adds additional significance to the Missouri.

This stretch of the river has particular recreation potential also in view of the proposed DeSoto Bend Refuge.

The National Park Service has been called upon by the Bureau of Sports Fisheries and Wildlife to undertake recreation planning for this project, since not only is there a very great need for such areas in this region, but also because recreation and refuge management appear in this case to be quite compatible.

Preliminary studies indicate that it can prove extremely popular if properly developed and if the water quality proves attractive. Under these conditions a conservative estimate of annual attendance points to a figure of about 600,000, and admittedly this figure might go considerably higher.

This I am speaking of entirely in reference to DeSoto Bend Refuge.

This is dependent upon its attractiveness.

Outside of the DeSoto Bend area this stretch of the river is receiving increased recreation use but its potential is only scratched. The people and park planning agencies will look more and more to the river, we feel sure.

It is our opinion that the future use of this river section for recreation purposes will depend in large measure on how safe and attractive it is and, hence, on continued flood and silt control plus reduction of pollution.

Thank you.

MR. EDELMAN: Thank you, Mr. Witness. That is all.

CHAIRMAN WILSON: Any questions?

MR. DAVIS: No questions.

CHAIRMAN WILSON: Members of the Board?

MR. KURYLO: I have a few questions.

Q. (By Mr. Kurylo.) Do you have any statistical information on the boating use being made of the river?

A. No, sir, we don't.

Q. Your statement indicated that there is an increase in use for boating?

A. Yes, sir. We base that on our experience in reservoirs upstream and also offstream or, rather, tributaries of the Missouri, various reservoirs that have been built and are now in operation. Recreation areas around reservoirs in the entire Missouri River Basin, seven states, has increased materially in the last, well, since the first one completed and opened for recreation use in 1952. I can speak more for reservoirs on the tributaries. The last two years particularly the boating has increased immeasurably and our statement simply indicates that we anticipate that will also be true in the main stem with the completion of the six or so reservoirs that Mr. Pafford referred to that the Corps of Engineers is building.

Q. You indicate that you have an interest in this particular project which is downstream from here, the recreational planning of--

A. DeSoto Bend.

Q. --DeSoto Bend?

A. Yes, sir.

Q. Does the National Park Service have included in any of its plans for future development additional recreational sites on this reach of the river below Sioux City?

A. No, sir, I know of none now. Let me explain how we come into the picture, sir. It is only at the request, that is we cooperate with other federal agencies, especially the other Federal agencies of the Department of Interior, we are the planning agency for the Bureau of Reclamation and to a lesser extent with the Corps of Engineers. We are called in by the Bureau of Reclamation and then make an analysis to determine the potentiality of impoundments they are planning on. Now, that is not quite true with the Corps. The Corps have their own planning staff. But we are frequently called in by the Corps of Engineers to work with their staff. So my statement indicates that so far we know of nothing else that either the Bureau or the Corps may be planning on from Sioux City to Omaha other than the DeSoto Bend Refuge I referred to. If any proposed dam or reservoir should come up, I presume we would be called in for consultation and service as we have in the past.

Q. Do you in your official knowledge know whether the State of Nebraska or the State of Iowa may be planning some state parks in the reach of the river between Sioux City and Omaha?

A. I know of two that might be considered adjacent to the river, one here in South Sioux City, Crystal Lake, which of course was formed years ago by the river, an ox bow of the river which was cut off, another one down at Omaha, which also was a part of the river and also was an ox bow and was cut off by the channel of the river being changed, and that now is a park at Carter Lake. Those are the only two I can think of that might be given some recreation consideration. I know they are.

Q. Are they on publicly owned land now?

A. Carter Lake to a considerable extent. However, there there is some private land, but it is a city park of Omaha. Crystal Lake to a much lesser extent. I think that is pretty well circled by private land. But there is a proposal to try and improve that recreation condition, situation.

MR. KURYLO: I have no further questions.

Q. (By Chairman Wilson.) Mr. McKown, would the observations that you have made on the possible recreational use of this portion of the Missouri River depend upon the establishment of any additional national or state parks along the river or would those uses be available in that stream from present means of public access?

A. Yes, sir, they are, by all means. They are not dependent upon establishing of any additional park areas, either national, state or local. We do know that I think Nebraska State, Nebraska is considering the possibility of acquiring access to the river, realizing that there is that potential that I referred to here in this lower stretch of the river and making it available to the public for boating activities. But I would say--

Q. But there are numerous means of access now, is that true?

A. No, sir, there are not, not numerous public access.

Q. What is the situation about public access to the river now?

A. They are not very many, not as many as should be provided to permit the public to get down to the river without going through private land. I think that that is the situation that Nebraska State is now considering, Game, Forestation and Parks Commission, to try to correct that situation by studying the possibility of acquiring some certain access points along the river so that the public will be admitted to the use of the river.

Q. Well, then, it is true that there are some means of public access now--

A. Yes, sir.

Q. --and the public recreational use of the river would be increased if additional means of access were provided--

A. Yes, sir.

Q. --either by the National Government or the States?

A. It is simply felt that as greater use, recreational use, of the river is made that to accommodate that use additional access points would probably have to be acquired.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: I have one other questions, sir.

Q. (By Mr. Kurylo.) Do you have official knowledge of a pollution problem here on the basis of any studies made by the National Park Service?

A. You mean, sir, just this stretch from Gavins Point to Omaha?

Q. The one in issue at this hearing.

A. No, sir, I don't know of any. I am not appearing as an engineer, of course. Our studies have been made on recreation potentials of the stream in the main stem.

MR. SAMSON: I have one short question.

Q. (By Mr. Samson.) Did you tell us what that facility, the DeSoto Bend development, was?

A. Simply a refuge. Is that what you have in question?

Q. Is there any recreation in connection with that?

A. Sir, our studies cover that, but I don't feel free to disclose that. I think that should come out by the Fish and Wild Life Service, the Missouri Sports Fishers and Wild Life.

Q. Very well, then--

A. With whom we are cooperating.

MR. SAMSON: Fine. Thank you.

CHAIRMAN WILSON: Any other questions?

MR. EDELMAN: Yes, Mr. Chairman.

Q. (By Mr. Edelman.) Mr. McKown, are you aware that the Public Health Service is the public health adviser of the park service? In other words, if you wanted information on a public health matter you would consult the Public Health Service?

A. U. S. Public Health Service?

Q. Yes.

A. Yes, sir. We have cooperated with the Public Health Service over the past 13 years as long as we have been operating on the Missouri River Basin project.

Q. If you were looking for advice on whether an area was polluted you would apply to the Public Health Service whether the water was polluted?

A. Yes. I might say further that any plans we prepare for recreation development in accordance with an early arrangement with the U. S. Public Health Service, those plans are always cleared by the State Board of Health of the state concerned of any particular reservoir.

MR. EDELMAN: That is all.

CHAIRMAN WILSON: Any other questions?

We will take a recess until 9 o'clock tomorrow morning. Just a minute, did I hear someone?

MR. DAVIS: Mr. Chairman, I would like before you close the record on today's proceedings to move to strike all of the witness's testimony on the grounds it is incompetent, irrelevant and immaterial, my objection as to competency going both to the testimony, which I don't think helps prove anything in this case, and to the witness, who has affirmatively shown himself, in response to your own questions, not to be competent to testify on this issue here, no foundation has been laid as to his knowledge at all.

CHAIRMAN WILSON: Motion denied and the evidence will be received subject to the objection.

(Witness excused.)

CHAIRMAN WILSON: 9 o'clock tomorrow morning.

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WHEREUPON, the hearing was adjourned until 9 o'clock a.m. of the following day, at which time the following further proceedings were had and entered of record, to wit:

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MORNING SESSION, TUESDAY, MARCH 23, 1959

CHAIRMAN WILSON: The hearing will be in order.

Are you ready to proceed?

MR. EDELMAN: Yes, we are.

CHAIRMAN WILSON: Before you go ahead, I would like to find out what the sentiment would be of counsel for all parties about holding a night session this evening.

MR. STEIN: We would have no objection, sir.

CHAIRMAN WILSON: How about you, Mr. Davis?

MR. DAVIS: Well, I wouldn't say that I have any objection, Mr. Chairman, but I view it dimly. I have been through this matter of evening sessions several times, to include Army court martials, and I find that usually the court reporter and myself are completely exhausted by 5 o'clock and it does seem to me that perhaps you--these things are sort of like diagnosing the wounds, that the daylight would help you to look into the wound. I think we all might be a little tired.

CHAIRMAN WILSON: I have consulted the court reporter and she has indicated that she would be willing to serve at an evening session, say from half past 7 to 9 o'clock. The reason we are considering it is this: We have an 8-member Board here who have come together from a long distance and if it should appear during the day as we go along that this hearing is likely to consume the better part of the week it would certainly be an advantage to hold a night session.

MR. DAVIS: Well, Mr. Chairman--

CHAIRMAN WILSON: In case that would save is a day.

MR. DAVIS: My principal difficulty is this, actually. I have no way of knowing how long the hearing will go, no way of knowing what the testimony is going to be, like yesterday afternoon's, and I will probably need some time in which to prepare the city's case so it can be presented in an orderly fashion and promptly. Now, it does occur to me that you have that boat trip scheduled for tomorrow and if I could use that period of time to stay and work, prepare my presentation, then I would have certainly a lot less objection to an evening session.

CHAIRMAN WILSON: Mr. Samson reminds me of what I said yesterday, that tomorrow afternoon, weather permitting, we intend to take a boat trip, and if the Corps of Engineers supplies enough of a navy we would invite counsel for all the interested parties and also the representatives of the press if there is room for them. Now, I don't think that would take all afternoon, by any means. We would plan to go out at 1 o'clock, right after lunch tomorrow, and just take enough of a trip so that the Board and others that might accompany us would get a view of the area of the river that is affected, immediately affected.

MR. DAVIS: I could use that time. Perhaps I could stay here and prepare my presentation then so I would be much less--

CHAIRMAN WILSON: That would be entirely your prerogative.

At any rate, we won't make any decision about an evening session now, but before we adjourn this afternoon I think we will size up where we are at the time and then bring up that matter again. We certainly won't order an evening session that would work a disadvantage to the city or any other interested party.

Go ahead, Mr. Stein.

MR. STEIN: Mr. Edelman.

MR. EDELMAN: I call Mr. Elkins to the stand.

SECRETARY AYERS: Pardon me, Mr. Edelman.

Mr. Chairman, I wonder if the Government could present their witnesses that will testify this morning in order that I might have the clerk come in and swear them, thereby relieving the clerk of staying in here or running back and forth. Do you have a list of the witnesses? Is that agreeable to the Chair?

CHAIRMAN WILSON: Yes. Can you do that, Mr. Stein?

MR. EDELMAN: Yes, we can, Mr. Wilson.

CHAIRMAN WILSON: Please bring up all the witnesses you have available, have them sworn in a group.

MR. EDELMAN: Mr. Elkins, Dr. Walton, Mr. Kittrell, Mr. Clark, Dr. Ryckman, Mr. Hartung, Mr. Walton, Mr. Edwards, Mr. Hillebrandt.

Mr. Ayers, I hope somebody is making a list of these people.

SECRETARY AYERS: The reporter is going to make a list.

MR. EDELMAN: Fine. Thank you.

SECRETARY AYERS: Would you be good enough to state your name to the reporter.

DR. WALTON: Graham Walton.

MR. KITTRELL: F. W. Kittrell.

MR. CLARK: Harold F. Clark.

MR. ELKINS: Winston A. Elkins.

DR. RYCKMAN: D. W. Ryckman.

MR. HARTUNG: H. O. Hartung.

MR. WALTON: R. R. Walton.

SECRETARY AYERS: All of you have given your names to the reporter?

Would you hold up your right hands, please, and be sworn.

(Witnesses sworn.)

MR. EDELMAN: Mr. Elkins, will you take the stand, please.

WINSTON A. ELKINS,
called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Will you state your full name and identify yourself for the reporter?

CHAIRMAN WILSON: May we get the full name, please?

MR. EDELMAN: I have asked him to state his full name, Mr. Wilson.

Q. (By Mr. Edelman.) Will you state your full name?

A. My name is Winston A. Elkins. I am a member of the Regional Directors Staff of the Bureau of Sport Fisheries and Wildlife. My job is Division Chief in Fisheries.

Q. As part of your official duties, Mr. Elkins, are you familiar with what is called the DeSoto Refuge?

A. Yes, sir.

Q. Can you describe that project for us?

A. The DeSoto Refuge is a new national wildlife refuge located about 75 miles downstream from Sioux City here. It is between Blair, Nebraska, and Missouri Valley, Iowa. They call it the DeSoto Bend. It is actually on the DeSoto, Bertrand and Harrison Bends of the Missouri River.

MR. SAMSON: Mr. Edelman, I didn't get his address. Did he testify to his address?

CHAIRMAN WILSON: Minneapolis.

A. Minneapolis, Minnesota.

MR. SAMSON: Thank you.

A. This bend will be cut off by a cutoff channel and the slack water in the Ox Bow will be used for waterfowl refuge purposes and for recreation.

Q. (By Mr. Edelman.) Have you prepared a chart showing the location of this project, Mr. Elkins?

A. Yes, sir.

Q. May I have it?

MR. EDELMAN: I have been handed a chart which is entitled "Proposed Refuge Development DeSoto Cutoff," and ask that it be marked for identification as Government Exhibit No. 13.

(Government's Exhibit No. 13
marked for identification.)

Q. (By Mr. Edelman.) I show you Government Exhibit No. 13 for identification and ask you whether this is the chart that was prepared under your direction?

A. It was prepared in our engineering office in Minneapolis, yes.

Q. And this is part of your official record?

A. Yes, sir.

MR. DAVIS: Mr. Chairman, no objection to the foundation that was or was not laid, but the exhibit is objected to as irrelevant and immaterial to the issues before this Board.

CHAIRMAN WILSON: Received subject to the objection.

MR. EDELMAN: I offer the exhibit as Government Exhibit in evidence No. 13.

SECRETARY AYERS: It has been admitted.

(Government's Exhibit No. 13
received in evidence.)

Q. (By Mr. Edelman.) Mr. Elkins, can you tell us the area that will be involved in this project?

A. It will be about 8,100 acres of land and water.

Q. How will that be maintained?

A. Well, the entire area will be a national wildlife refuge, actually a managed water fowl area. The bend in the river inside the Ox Bow will be a sanctuary for ducks and geese. As water fowl populations permit and regulations warrant there will be managed public hunting outside that bend on the perimeter lands as we can do it.

Q. Will you please tell us the status of the project at this time?

A. Yes. This project is authorized by the Migratory Bird Act of 1929 and the Duck Stamp Act of 1934, and so far our bureau has completed the surveys and the appraisals there. The Corps of Engineers will do the cutoff channel and the bank stabilization, pumping plant, if it is used, and those things. Right now our men are negotiating for the land and have under option 4,484 acres. The first order of business there was to get the land where the cutoff channel will go through in public ownership and of the 12 ownerships there we have optioned 9 of them.

Q. Do you have any cost estimates--I am sorry. Were you finished?

A. Well, I was going to say one other thing. The National Park Service has done the recreational planning there. The Corps of Engineers, as I said earlier, has done the cutoff part.

Q. Do you have any estimates of the cost of developing this refuge?

A. Yes, I do. The land acquisition estimate is one million four hundred thousand. The estimate for development of the refuge facilities is eight hundred thousand. So there is a total of two million two hundred thousand for wildlife purposes. The estimates for recreation, various facilities there for recreation, range all the way from two hundred thousand to a million, depending entirely on how much recreation is authorized and how far it will go on the recreational end of it. Those estimates don't include the cutoff channel costs or the bank stabilization. That is the Corps of Engineers responsibility.

Q. Mr. Elkins, can you tell us what the function of this refuge, if it is completed, will be?

A. Well, it will be one part of the pattern of national wildlife refuges primarily for waterfowl. Right now the eastern prairie flock of Canada geese flies almost non-stop from Canada or northern North Dakota down to the Swan Lake refuge in Missouri and this will provide a resting place on that migration route in between. It is actually about on the boundary between the central flyway and the Mississippi flyway. That Canada goose use will be both in the fall and spring. The blue goose and the snow geese will be largely a spring use and we expect that the bulk of that flock will stop there on their northward migration. As far as ducks are concerned, there will be the usual duck species for this part of the country: Mallards and pintail, some of your other puddle ducks, like widgeon, blue wing teal and green wing teal, blue bills, and possibly some canvasbacks and redheads. There will be other shore birds, of course, and whatever song birds are common to the Missouri Valley will find a sanctuary there.

Q. What recreational facilities or uses are envisaged for this project?

A. Well, it will be day use, mostly, rather than overnight, certainly picnicing, certainly fishing, I mentioned managed hunting when populations will permit it, water skiing, boating, and winter fishing we are quite certain. We haven't gotten--I think there might be some winter fishing there. Now, the bureau figures that the waterfowl use will run October through December and again in the spring, March, April and May, and so the summer recreation will be between that period.

Q. Did you mention swimming as one of the uses contemplated for this area, Mr. Elkins?

A. Yes, that would be part of the use as far as I know.

Q. Have you estimated the population uses that will be made of this, the number of visitors that you estimate your planning for annually?

A. You mean human visitors or duck?

Q. Human.

A. No, we haven't made those estimates. The park service has. The latest estimate I heard was six hundred thousand visitors annually.

MR. DAVIS: That is objected to as hearsay, Mr. Chairman, the last statement.

MR. EDELMAN: Mr. Chairman, this is the basis on which the witness has testified, the plans for the refuge are going forward, and I submit that it is admissible on that ground alone.

CHAIRMAN WILSON: It will be received subject to the objection.

Q. (By Mr. Edelman.) Where will the water for the water sports you have described, swimming, boating, water skiing and fishing, come from, Mr. Elkins?

A. Well, they will be in what we call the Ox Bow, the bend of the river that is cut off would be the place. The water supply would be the Missouri River itself through the upstream cutoff structure. In addition there is about a 14-square-mile side drainage coming in there and there will be some water from that.

Q. Have you considered the relationship of the quality of the water that will be available for these water uses by human beings in determining the extent to which this recreational use will be feasible or practical?

A. I wouldn't say our agency has done that. We have--the recreational end of it has been handled by the park service.

Q. Has your agency any view as to the extent to which the water quality may affect your contemplated use of it?

MR. DAVIS: That is objected to for the reason that--

MR. EDELMAN: I will rephrase the question.

MR. DAVIS: I am not objecting to the form of your question, Mr. Edelman. I am objecting to it for the reason that the witness has shown that he and his service are not qualified to answer the question. My objection, then, of course, Mr. Chairman, goes to competency.

MR. EDELMAN: I am not asking for his expert opinion. I am asking whether he or his agency have any view as to the extent to which a poor quality of water available for recreational use will affect their planning.

CHAIRMAN WILSON: Well, you might examine the witness a little further on that to establish his qualifications.

Q. (By Mr. Edelman.) Mr. Elkins, does your department plan or permit recreational use of water which it is advised is polluted?

MR. DAVIS: Well, that-- I have no objection.

A. No. It would depend upon the severity, I guess. But in general on our other refuges we depend upon the state health agency for those determinations. As managers of the land, of the refuge, in the name of the United States we might take the action in permitting or prohibiting the public there, but it would be based on this other.

Q. (By Mr. Edelman.) In other words, you do not consider that water which you are advised by competent authority to be polluted is satisfactory as a recreation area for human beings?

A. That is right.

Q. And if this water--if you were advised by competent authority that the water in the Ox Bow which is to be taken from the Missouri River were polluted to a degree that it constituted a hazard to the people that use it, you would not consider it appropriate to expend Government funds for the development of this as a recreational area for human beings, insofar as the use of the water was concerned?

A. I think that the answer is obvious, that we would not.

MR. EDELMAN: We have no further questions, Mr. Chairman.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Elkins, how long has this project been in the planning stage and development stage?

A. It has been worked on by the western Iowa and similar Nebraska conservation organizations for some years. The idea of a refuge to fill this gap, as I explained, in the migration route has been in our planning for 20 years or more.

Q. Right.

A. We haven't gotten to it yet.

Q. Well, your last--

A. The actual hearing, Mr. Davis, was held in September of 1957, one in Blair and one in Missouri Valley. I think you might say that was about the start of it.

Q. My point is this, your last answer said that if you were advised concerning the river being polluted, and so forth, it would make a difference. Now, is this Board to understand that the Government for 20 years has been planning this and has now committed $2,200,000 to it exclusive of earth removal without knowing whether the water was going to be satisfactory?

A. Well, I think we figure this is about the best bet to get what we need here. We are committed both to the wildlife thing and the recreational thing.

Q. Right. Regardless, you are going ahead with it, aren't you?

A. We are negotiating for land there.

Q. Yes. But certainly you wouldn't expend or commit the expenditure of several million dollars on this project if you thought that for reasons of public health you couldn't use it after it was done, would you?

A. Well, I don't know what you are asking now. I think there would be serious question about going ahead with the recreational facilities if water wasn't suitable.

Q. But you have committed yourselves to it, haven't you?

A. We have spent no money for recreation except--

Q. But as of this moment whoever plans these things, and so forth, and arranges for the appropriation of the money is satisfied with this location and you are going to go ahead and use it, aren't you?

A. As I said, we are optioning land there now.

Q. All right, sir. Now, I didn't hear some of your first testimony, Mr. Elkins. Do you have any knowledge as to the river miles that the DeSoto Bend is below Sioux City?

A. I haven't measured it accurately. I would say 75.

Q. Perhaps this will help us as later testimony develops. Where is it on the river with reference to Blair, Nebraska?

A. It is almost due east of Blair. In fact, U. S. 30 touches our northern boundary.

Q. Would you have any knowledge as to where it is located with reference to where the city of Blair, Nebraska, was, and still may be, discharging sewage into the Missouri River?

A. No, I do not.

Q. You don't know whether it is above or below on the river?

A. No, I don't know.

Q. But without knowing that, the Government has--I mean regardless of that possible factor, the Government has gone ahead and made these plans?

A. The Government has done what?

Q. I withdraw the question. You are Division Chief of the fisheries branch or would you mind repeating your actual duties, sir?

A. My title is Division Chief, Division of Sport Fisheries. That is one of three operating divisions in our organization.

Q. As such, Mr. Elkins, are you familiar with or do you know whether or not there is presently any sport fishing in the Missouri River?

A. I know that there is, yes.

Q. Is it a correct statement or is it true, Mr. Elkins, that since the Gavins Point Dam was closed and the turbidity of the water has been reduced in this particular reach of the river below Gavins Point between there and, say, Omaha, that there have been an increasingly large number of game fish appearing in the stream?

A. My personal knowledge only extends to a few miles below Gavins Point right at Yankton at this reach, so I couldn't answer that.

Q. You mean you have no knowledge at Sioux City or below?

A. On game fish?

Q. Yes.

A. Yes, sir.

Q. Just at Gavins Point?

A. That is right.

Q. Would you be'ieve that there would be game fish present in the river at the DeSoto Bend?

A. Is this hearsay now? I believe there are, yes.

Q. In other words, you would have no quarrel with any of the witnesses who might come in here and say that there are northern pike, there are walleyed pike, there are bass present in the entire river stretch between Gavins Point and DeSoto Bend now?

A. I don't know.

Q. I am asking you if you would have any quarrel with them?

MR. EDELMAN: His answer was he doesn't know. I don't think he would know that.

MR. DAVIS: He doesn't know.

Q. (By Mr. Davis.) Was there someone in the division of the fishery department who would have that information?

A. Most of our Missouri Basin work has been restricted so far to the reservoir developments and we haven't had the personnel or funds to make complete surveys. Therefore we depend on the state game and fish departments for their--

Q. For their figures?

A. Yes, that section of the river.

Q. Persisting for a moment with the question of game fishing, is the oxygen content of the river water important as to whether or not game fish exist in the river?

A. Yes, sir.

Q. What is the minimum standard, if any, that the Federal Government has established or your department for oxygen content to support aquatic life?

A. Well, I won't answer that. It involves too many things. The amount of dissolved oxygen for grayling would be a great deal higher than for trout. For trout would be a great deal higher than for some of the warm water fish. It would be higher for some of those warm water game fish than it would for carp, possibly, mud minnows, and so on. It is quite relative there. We don't set any standards. We do know that when the dissolved oxygen gets down too far that it is dangerous to fish.

Q. Do you have any specific information concerning the oxygen content of the Missouri River, or of course the water in it, at this DeSoto Bend place, development?

A. No, I don't.

Q. Do you have any specific information concerning the oxygen content or the lack thereof of the water of the Missouri River at any place between there and Sioux City?

A. No, sir.

Q. So that what you are testifying concerning here today is just simply that the Government is planning this recreation area at DeSoto Bend, isn't that so?

MR. EDELMAN: I think the testimony has been, Mr. Davis, the Government is doing more than planning it, they are proceeding with it and the acquisition of the land and the making of plans.

MR. DAVIS: I accept the amendment to my question.

Q. (By Mr. Davis.) All you are here to testify about is the development of the Ox Bow recreation area?

MR. EDELMAN: And the uses which will be made of it.

Q. (By Mr. Davis.) And the uses which will be made of it?

A. Yes, and the wildlife refuges there.

MR. DAVIS: Right.

Mr. Chairman, at this time the city moves to strike all of the witness's testimony for the reason it is irrelevant and immaterial to the matter in issue before this Board.

CHAIRMAN WILSON: Motion denied. The testimony will stand subject to the objection.

MR. EDELMAN: Thank you, Mr. Elkins.

MR. SAMSON: Mr. Elkins, I wanted to ask a question.

MR. EDELMAN: Oh, I am sorry.

CHAIRMAN WILSON: Just a minute. Any other counsel have questions?

All right, Mr. Samson.

MR. SAMSON: You are ahead of me. Go ahead.

Q. (By Mr. Hershey.) Mr. Elkins, I noticed that some land now on the right bank of the river will, after the cutoff is made, be on the left bank. Can you tell me in what state that land will be after the cutoff is made?

A. I am a biologist, not a lawyer. There is some precedence, I am sure, that it stays in the same state before the channel is changed.

Q. Well, there is some precedence to the contrary, too.

A. In other words, where the thread of the stream was the boundary.

Q. Sir?

A. Where the thread of the stream was the boundary.

Q. Well, has this been settled so far as you know?

A. Not that I know of.

MR. HERSHEY: Thanks.

MR. JONES: I can say that I have been through that experience down home. The original stream stays the county line or state line, whichever it is.

MR. HERSHEY: I was thinking of a place called Carter Lake, which is in Iowa but on the west side of the Missouri River now, as I understand it.

Q. (By Mr. Jones.) I would like to ask Mr. Elkins, he referred to pumps being at this site. I think I possibly know. Would you tell us what those pumps would be used for?

A. Actually there were several alternative plans for getting water into the Ox Bow and controlling the levels the way we want to control them. The pumping was contemplated and that is still under study. I understand that the engineers slightly favor now a gravity system for bringing the water in through a culvert and a control gate.

Q. Gravity from what source?

A. From the Missouri River.

Q. To maintain a predetermined level of the reservoir?

A. That is right. And we will want to manipulate levels in there for waterfowl food plants, and for that reason there will be a structure at the lower end where we can move water out if we want to do that. But I believe the studies are favoring a gravity system now.

MR. JONES: O.K.

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Samson.) Mr. Elkins, then the water that is proposed to be used for fishing and recreation and swimming in the Ox Bow will come from the water in the Missouri River, governed either by pumps or a gravity system, is that right?

A. Yes, sir.

Q. Except for the slight drainage area on the Iowa side?

A. That is right.

MR. SAMSON: That is all. Thank you.

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Elkins.

(Witness excused.)

GRAHAM WALTON,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Dr. Walton, I reminded you that you were sworn in earlier and that your testimony you are now about to give is still under oath. Will you give your full name and address to the reporter, please?

A. Graham Walton, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati, Ohio.

Q. By whom are you employed, Dr. Walton?

A. By the Robert A. Taft Sanitary Engineering Center, Public Health Service, Department of Health, Education and Welfare.

Q. In the course of your employment by the Public Health Service, Dr. Walton, have you had official responsibility for investigations in the field of water supply and water treatment?

A. I have had charge of certain studies in the field of water supply.

Q. Can you tell us how long that experience continued?

A. My total experience in Public Health Service has been quite varied. My first assignment in 1943 was the Denver regional office, which I was assigned to work on problems of water supply. I was later assigned to the Federal Public Housing Authority as Regional Sanitary Engineer, I think it was Region 10, San Francisco. Among other duties I had certain responsibilities in connection with water supply. From there I was assigned to the Bureau of Prisons, Washington, D. C., the office of Medical Director. Among certain other duties I had some responsibilities in connection with water supplies. Since being assigned to the Robert A. Taft Sanitary Engineering Center I have been for about four or five years in the water supply unit.

Q. Prior to your employment by the Public Health Service did you have any experience in the field of water supply sanitation?

A. My experience prior to being in the Public Health Service was that in teaching, five years at the State School of Mines, Rapid City, South Dakota, eight years University of Wisconsin. I taught in the field of Sanitary Engineering, along with certain other subjects at times, and had taught courses on water supply along with others.

Q. What formal degrees do you hold, Dr. Walton?

A. I have a Bachelor of Science, Kenyon College, Bachelor of Science in Sanitary Engineering from M. I. T., Master of Science, Civil Engineering, University of Wisconsin, Doctor of Philosophy, major in Sanitary Engineering, University of Wisconsin.

Q. In the course of your education and experience have you become familiar with the method of operation of water treatment plants and the problems they face?

A. I believe so.

Q. As part of your official duties have you had occasion to inspect and visit the Florence pumping station of the Omaha Metropolitan Utilities District?

A. I have.

Q. Can you describe the kind of water treatment that is provided at this plant?

A. I can. Do you wish me to do so?

Q. Please do so.

A. The degree of treatment provided at the Florence plant in the Metropolitan Utilities District of Omaha is what I would term a high degree of treatment.

MR. DAVIS: I beg your pardon, Doctor?

A. A high degree of treatment.

Q. (By Mr. Edelman.) By "high degree of treatment" what do you mean, Doctor?

A. They start off-- Their facilities provide for plain sedimentation, double coagulation and sedimentation, at least three point application of chlorine in addition to filtration, and so on.

Q. Are you aware of the source of the water for the Florence pumping station?

A. I am.

Q. Is it the Missouri River?

A. It is.

Q. In the course of your study and visit to this plant that you have described did you learn when this high level of chlorination was installed?

A. I have been informed that prior to 1948 they provided post-chlorination only.

Q. (By Mr. Samson.) What kind of chlorination?

A. Post-chlorination.

MR. SAMSON: Thank you.

A. That is chlorination after filtration. In 1948 they added chlorination prior to filtration, just ahead of filtration. In 1952 they added what I think of in terms of prechlorination. It is not the first initial treatment necessarily, but it follows immediately after plain sedimentation tanks.

Q. (By Mr. Edelman.) As part of your official duties, have you familiarized yourself with the level of bacterial contamination at the Omaha raw water intake from the records of the plant?

A. I have. First I studied the Omaha plant in connection with my studies of the effectiveness of water treatment plants in removal of coliform bacteria. I have also received additional data from Mr. Kittrell on the raw water coliform density.

Q. Do you have any information as to the actual level of bacterial contamination that has been found and measured at the intake?

A. I have five years monthly average coliform density data on the raw water supplied to the Omaha treatment plant. Thirty-six percent of those sixty months, I think it is actually thirty-six and two-thirds, the coliform density equalled or exceeded twenty thousand per hundred milliliters. For approximately 12--and I say approximately 12; nearer 12 than 11 or 13--it exceeded 50,000 per hundred milliliters.

Q. (By Mr. Davis.) That is percentage, Doctor, still?

A. Yes, 12 percent. For one month out of the sixty it exceeded two hundred thousand per hundred milliliters. These are all monthly average arithmetical, they are monthly arithmetical averages.

Q. (By Mr. Edelman.) Would you identify that five-year period, Doctor? I don't think I heard you indicate the period.

A. That period, the last year was '58 and I think that would make the first year '54, I believe.

Q. Based on your experience and knowledge as to the operation of water treatment plants, would you consider that in the light of this level of contamination of the raw water supply the installation and effective operation of the chlorination measures you have described are necessary in order to insure the delivery of a safe water supply under generally accepted standards to the customers of the Metropolitan Utility District?

A. I believe the high level of chlorination is essential to the treatment of such water.

Q. Now, Dr. Walton, I ask you whether you are familiar with the Public Health Service standard on potable water for use on interstate carriers?

A. I have frequently referred to such standard.

Q. I now offer the witness Title 42, Code of Federal Regulations. I call his attention to sub-part J of Title 42, which is entitled "Drinking Water Standards," and I ask the witness to read from Section 72.203 (a) (2), which indicates the frequency of sampling and the location of sampling points that are to be utilized and the extent to which laboratory tests may indicate the presence of coliform bacteria in finished water products.

MR. DAVIS: I have no objection, Counsel, but I didn't catch the name of the publication.

MR. EDELMAN: This is Code of Federal Regulations.

MR. DAVIS: Of what year, sir?

MR. EDELMAN: This is accumulative volume, 1949 edition, but accumulative.

MR. DAVIS: 72203?

MR. EDELMAN: 72.203.

MR. DAVIS: (a) (2)?

MR. EDELMAN: The contents of this volume are by law prima facie of the text of the original documents and are required, U. S. Code 307.311 (c), to be judicially noticed.

MR. DAVIS: I have no objection at all. I just wanted to know what it was.

MR. EDELMAN: Very good.

A. "The frequency of sampling and the location of sampling points on the distribution system should be such as to determine properly the bacteriological quality of the water supply. The frequency of sampling and the distribution of sampling points shall be regulated jointly by the reporting agency and the certifying authority after investigation by either agency, or both, of the source, method of treatment, and protection of the water concerned."

Do you want the minimum number of samples?

Q. (By Mr. Edelman.) I don't think that is necessary. That will be in the record. Would you read the part about the presence of bacteria that is permitted?

A. "Of all the standard ten milliliter portions examined per month in accordance with the specified procedure, not more than ten percent shall show the presence of organisms of the coliform group.

"(2) Occasionally three or more of the five equal ten milliliter portions constituting a single standard sample may show the presence of organisms of the coliform group: Provided, That this shall not be allowable if it occurs in consecutive samples or more than:

"(i) Five percent of the standard samples when twenty or more samples have been examined per month.

"(ii) One standard sample when less than twenty samples have been examined per month.

"Provided further, That when three or more of the five equal ten milliliter portions constituting a single standard sample show the presence of organisms of the coliform group, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality." Is that--

Q. That is sufficient. Thank you. In other words, Dr. Walton, from what you have just read it is entirely possible for the Omaha water plant or for any other water plant to have coliform bacteria in its finished water, that is water that has gone through treatment, and still meet the standard that you have quoted?

A. It is.

Q. Do you consider that the source of water supply for the Florence Pumping plant, which is the Missouri River, to be of a desirable quality?

A. No.

Q. Can you tell us why not?

A. Coliform bacteria to me are an indication of sewage contamination. Sewage contamination of water used as a source for the production of potable water is certainly not desirable. Although from my studies I am convinced that we can remove coliform bacteria, there are other problems that are involved. Frequently we have taste and odor problems. In fact, taste and odor problems are a major concern to water plant operators in this concern. I might merely add one other thing. Coliform bacteria are indicator organisms. We have still a lot to learn regarding their resistance to certain water treatment processes as compared with other pathogenic organisms.

Q. Do you consider that this level of pollution at the raw water intake constitutes a hazard?

MR. DAVIS: That--excuse me, Dr. Walton. That is objected to as calling for a conclusion of the witness.

MR. EDELMAN: This is an expert witness, Mr. Chairman, and I think he is qualified to give that opinion.

MR. DAVIS: I don't propose to enter into any arguments at this time concerning the testimony, but I do have to make a record, Counsel, and--

MR. EDELMAN: I was addressing my remark to the Chairman. I wasn't arguing with you, Mr. Davis.

MR. DAVIS: All right.

CHAIRMAN WILSON: The objection is overruled. The testimony will be received subject to the objection.

A. Anything that places an increased load on a water treatment plant or process increases a probability of a passage of pathogenic organisms or any other material that is in the raw water.

MR. EDELMAN: We have no further questions, Mr. Chairman, at this time.

MR. DAVIS: Would you like to recess, Mr. Chairman, before cross-examination?

CHAIRMAN WILSON: Would you like to take a recess now?

MR. DAVIS: Well, you did at 10 yesterday and I thought perhaps it would be appropriate now.

CHAIRMAN WILSON: We will take a 10-minute recess.

(RECESS)

CHAIRMAN WILSON: The hearing will be in order.

Are you ready to proceed, Mr. Davis?

MR. DAVIS: Yes, sir.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Dr. Walton, as a preface to our cross-examination and for the sake of the record, I know the Board is aware of this, but for the sake of the record as well, I am wondering if you could explain the coliform density somewhat?

A. Would you please explain what you mean by a definition of what the term means?

Q. Yes, I will do it in this way, Dr. Walton. Coliform organisms themselves are not disease-producing necessarily, is that a correct statement?

A. Not quite. In general we consider the coliform organism as a non-disease-producing organism, this is true.

Q. Yes.

A. Associated with the wastes of animals, including humans. There are a few strains, I believe, and I would not want to go farther into this, but from my knowledge there are a few strains that have caused illness in infants.

Q. But as we are using--

A. We are not using it as a pathogenic organism, I am not implying that it is, but I am just trying to correct your statement that it is absolutely non-pathogenic.

Q. As I say, I am sure the Board appreciates that, but I do want it in the record that these are used--and correct me, please, if I mispronounce--this coliform count is just used to indicate the possible amount of bacteria in a certain amount of water, in this case a hundred milliliters?

A. It is a specific bacterial test, not total bacteria.

Q. I see. But generally speaking these organisms in and of themselves are not disease producing?

A. This is correct.

Q. Yes. Now, from where did your figures come for the monthly average of the coliform count at the Florence plant in Omaha?

A. They were supplied to me by Mr. Kittrell.

Q. And Mr. Kittrell--

A. Will testify, I believe, later on the source of those figures.

Q. Yes. Do you know who conducted the tests?

A. I think I know--now, I can't say for sure. I think they are from the records of the Florence plant itself, they were conducted by personnel of the Metropolitan Utility District.

Q. Doctor, you understand I am not challenging them, but I am leading up to this question. Could you explain briefly how these counts are taken or is that within your field?

A. We will have a bacteriologist on later who I believe is better qualified to cover that item than I am.

Q. Do you have any information concerning the accuracy of the way in which these counts are made?

A. I have considerable confidence from what I have seen in the personnel of the Metropolitan Utility District operating that plant.

Q. Well, I am speaking only of the technique of the tests themselves as to how valid they are. But you assure me that you will have someone on concerning that whom I can ask about that?

A. I believe we have someone on that will handle that.

Q. In this period of time of 1954 to 1958, or covering that period of time, were records also available to you, Dr. Walton, of the tests made of the finished water product in Omaha?

A. There were certain records made available to me.

Q. Would you be able to tell the Hearing Board upon how many occasions during that four years the finished product of the water did not satisfy the requirements which you had?

A. To my knowledge the Omaha water supply conformed with accepted bacteriological requirements for water at all times.

Q. My question, of course, was limited to the period of time about which you testified, '54 to '58, so I can assume from your answer that on no single day in that five-year period was their water product--

A. Our standards--

Q. Excuse me, sir --impure according to your standards?

A. Our standards do not cover a single day.

Q. Well, what period of time?

A. As I read to you from the Register before.

Q. Oh, one month?

A. It is based upon the percent--the basic thing is a percent of proportions in the month.

Q. Correct. So in the five years about which you testified the standards were met by Omaha water?

A. To my knowledge. I might point out one thing. The standards are based on a limited number of samples per month. In my studies I was largely concerned with the treatment of water. I did not go into detail in all cases on all samples taken from the distribution system. Where there seemed to be a question of possible compliance I did, in one case in one month, examine samples from the distribution system. But I know of no case where Omaha has been removed from the approved list of the Public Health Service.

Q. If the water at the Omaha intake met the present standards of five thousand coliform count, what change would that make in the procedures at Omaha, if any, of purification?

A. Based on my studies of water treatment plants, I am in agreement very close, from the limited data I have, with Streeter studies in that the type of plant studied by Streeter can handle water with a coliform density of five thousand per hundred milliliters.

Q. Well, perhaps I didn't make my question clear. You are acquainted with the type of equipment and probably even the personnel that the City of Omaha is using at this Florence plant. Now, if the water before it goes through the plant, the raw water, was within the present government standards, what difference would that make in their operations?

A. Of the present plant?

Q. Yes.

A. It would do two things, probably. It would decrease the potential hazard that might result from failure of equipment or personnel providing inadequate treatment. The principal difference probably would be permitting lower degree of chlorination. In other words, it is chlorine that is the prime difference between the plant studied by Streeter and many current plants treating heavily-loaded waters, it is tied in with heavy application of chlorine.

Q. I believe you were present yesterday, Doctor?

A. I was.

Q. Mr. Kurylo asked questions of the gentleman from the Omaha water district concerning the economic factor of the increased chlorination. Would you have any information on that?

A. The cost?

Q. Yes.

A. I have no information on costs on that.

Q. Would it resolve down to this, that mainly involved would be the amount of chlorine that would be used?

A. And the chlorine equipment and the care taken to provide and insure adequate chlorination.

Q. As far as Omaha is concerned, they would presently have to have the same water purification equipment, the same know-how, the same degree of diligence to be exercised by their employes in order to assure safe water under the present standards or--that is, whether the raw water was five thousand or fifty thousand they would still need these three factors, would they not?

A. I would not quite agree with that.

Q. In what respect do you disagree, sir?

A. As I stated before, the information I have confirms that of Streeter's studies. At the time of Streeter's studies the water plants were using marginal post-chlorination. A conventional rapid sand filtration plant with single stage coagulation, filtration and chlorination to a relatively low degree I believe would be capable of treating raw waters with monthly average coliform densities not exceeding five thousand per hundred milliliters.

Q. What I am trying to reach is this, that whether the raw water at Omaha was below five thousand or reached in that five-year period of which you made your study the figures that you gave, regardless of that, in order to assure the people of Omaha safe water they would have to have the same equipment, the same know-how and exercise the same diligence in their purification procedures?

A. I have pointed out that they would not need double-stage coagulation and sedimentation.

Q. Right.

A. That they could get by--I think it is safer, I agree--that they could get by without prechlorination, if the raw water were maintained at a coliform density not exceeding five thousand per hundred milliliters.

Q. Right.

A. So that is my answer to your question. I believe that covers it.

Q. There would still be the danger of breaking down?

A. I am a believer in prechlorination for the fact that regardless of the treatment you have control of the water over a longer period of time. If I were responsible for a water plant I would probably prechlorinate regardless of the level.

Q. Yes, sir. And there would still be present--I am speaking of Omaha at this time--always a danger in the event of breakdown, which has been mentioned?

A. If equipment fails, if human errors occur, there is always a hazard from any surface water that is contaminated.

Q. Regardless of whether the count is five thousand or fifty thousand?

A. I will put it this way, that your physical facilities of plant, if we remove chlorination, just one example, will not, in my opinion, provide a plant effluent conforming with accepted bacteriological standards for potable water, just simply removing one thing, chlorination.

Q. I take it that it is your opinion concerning the plant at Omaha that regardless of the spread in the count of the raw water you would recommend that they still prechlorinate?

A. I would.

Q. Did you make any study of the Council Bluffs' plant at all, sir?

A. No.

Q. As far as the equipment, the possibility of it breaking down, were there any breakdowns in the five-year period in which you made your study at Omaha?

A. Not to my knowledge.

Q. You said that prior to 1948 they had not used prechlorination, as I understood you?

A. This is what I have been informed.

Q. Right. Were you advised of any breakdowns in the period of from '48 to '54?

A. I did not inquire.

Q. Have you any information as to the incidence of breakdowns in modern, up-to-date chlorinating water purification equipment? Qualified question, Doctor.

A. I know of some instance.

Q. Of some instance?

A. Yes. That is all I can say.

Q. Would you describe the instance of which you speak?

A. I have been primarily concerned, for my own personal interest, with such instances where apparently the water, as far as known, met Public Health Service drinking water standards and yet was incriminated in the production of disease, and I might mention here an outbreak, 213 cases of typhoid, occurring at the Minneapolis, Minnesota, water treatment plant in 1935, probably due to insufficient chlorination. Another one--

Q. Excuse me, Dr. Walton. That may be developed later on. But my question now had to do with breakdown in modern, up-to-date equipment, if you are aware of instances of that?

A. You are thinking of a mechanical breakdown?

Q. Yes.

A. Well, this is hard to tell. The literature doesn't always tell you exactly what the detail was.

Q. Well, my question to you--

A. I can't answer that because I have not the detailed information on these instances where water has been incriminated as an agent in the transmission of disease.

Q. Because of mechanical breakdowns or failures of water purification equipment?

A. Right. Such can happen, though, I know of instances of chlorinators breaking down where they didn't have a standby.

Q. Are you advised, Dr. Walton, concerning the effect of primary treatment in sewage disposal plants with reference to the removal of coliform organisms?

A. I could not feel that I am qualified to answer the question, although I have done considerable work with sewage treatment. Ordinarily we do not study coliform removal in routine sewage treatment plant tests.

Q. In primary treatment in general what is done to the sewage?

MR. EDELMAN: Mr. Chairman, I think this witness has said that he is not an expert on sewage treatment processes and therefore I think both the Government and the witness would prefer that he not be required to answer these questions. This is far beyond the bounds of direct examination too, Mr. Davis.

CHAIRMAN WILSON: Are you interposing an objection?

MR. EDELMAN: Yes, sir, we are, Your Honor.

CHAIRMAN WILSON: Well, I think we will receive the testimony subject to the objection. You may follow it up on redirect.

Q. (By Mr. Davis.) I probably can restate the question, Dr. Walton. What has been proposed for Sioux City's primary treatment? Now, you, as I understood you to say, have made some studies of sewage treatment. Generally speaking, what does primary treatment do to the sewage that goes in there?

A. Primary treatment usually consists of screening and sedimentation, it will remove the coarser materials on the screen and the particles which will settle under the action of gravity or float and can be removed by skimming.

Q. In other words, its primary purpose is to remove floatable solids or solids?

A. To remove solids.

Q. Sir?

A. To remove solids.

Q. Yes, sir. And ordinarily what percentage of solids is removed by way or primary treatment--

MR. EDELMAN: Mr. Chairman, I--

Q. (By Mr. Davis.) --in a present modern, up-to-date plant?

MR. EDELMAN: I hesitate to object again. We have witnesses whom we think are especially trained and especially qualified in the field of sewage treatment and we did not call Dr. Walton in this area and I think that the proceeding would move with more dispatch if we were allowed to reserve this field until we call our expert on the results of sewage treatment. And again I renew an objection to this line of questioning to this witness, Mr. Chairman.

CHAIRMAN WILSON: Well, I think we will receive the testimony subject to the objection.

You may answer the question.

A. What was it? May I have it?

CHAIRMAN WILSON: If you can answer it.

MR. KURYLO: Mr. Chairman, I would like to interpose a question at this point, possibly giving counsel the right to continue cross-examination of this witness after he has had an opportunity to cross-examine the Government's expert on sewage treatment. It seems to me that this particular witness, although he is familiar with the general subject, is not the technical expert in the field.

CHAIRMAN WILSON: Would you like to have a consultation of the Board on that question?

MR. KURYLO: I would prefer one, sir.

Q. (By Chairman Wilson.) May I ask, before we proceed to such a consultation, Doctor, from your experience are you able to answer that question?

A. I believe the question referred to solids, wasn't it?

CHAIRMAN WILSON: Will the reporter please read the question again?

(Question read as follows: "And ordinarily what percentage of solids is removed by way of primary treatment in a present modern, up-to-date plant?")

CHAIRMAN WILSON: In view of the discussion, Mr. Davis, are you pressing that question?

MR. DAVIS: Yes, I believe so. In fact, I would like to make an offer of proof.

Q. (By Chairman Wilson.) Are you able to answer the question, Doctor? Just a minute.

A. I will have to have a definition--

Q. I am simply asking you if from your professional experience you are able to answer that question. You can answer that yes or no.

A. Within reason I think I can answer it.

CHAIRMAN WILSON: Very well. Now, in view of that, Mr. Kurylo, do you still desire a consultation of the Board?

MR. KURYLO: I will withdraw my point.

CHAIRMAN WILSON: Very well. We will take a recess of five minutes while the Board retires to consider that question.

MR. KURYLO: I withdraw my point.

CHAIRMAN WILSON: Oh, I beg your pardon. I misunderstood you.

MR. KURYLO: The witness said he is reasonably competent to answer the question.

CHAIRMAN WILSON: O.K., you may answer the question, Doctor.

A. Before I answer the question, I need a definition of what he means by solids.

Q. (By Mr. Davis.) Dr. Walton, in any of my questions I am willing to accept your definitions. In other words, you can explain in your answer what you mean by solids.

A. Well, there are such things as dissolved solids.

Q. All right.

A. There are such things as suspended solids, there are such things as colloidal solids.

Q. All right.

A. A large percent of the settleable solids are removed by primary treatment. Dissolved solids are relatively untouched. Colloidal solids are relatively untouched.

Q. So of course it depends on the product you have to work on as to how much of each type of solids there are?

A. This is a reasonable assumption.

Q. Doctor, there are coliform bacteria present in all forms of sewage regardless of the amount of the different kinds of solids?

A. I would expect so.

Q. Would you agree that in primary treatment that there is no perceptible--and you may define perceptible in your own way--diminution of coliform bacteria in primary treatment?

A. I would not agree with such a statement.

Q. All right, sir. If we were to assume that the sewage which goes into a primary treatment plant has a coliform content count of one hundred thousand, would you give the Board an estimate as to how much the effluent would have as it left the plant?

A I think this could be quite variable, depending on the freshness of the sewage, and so on, depending on the type of sewage. I have not recently looked at such figures on coliform. In my experience and work in connection with sewage treatment plants we have not studied coliform bacteria. I would not consider my background at this particular time sufficient to answer your question.

Q. Fine. By that I mean that is a frank answer and I will not persist in it. Now, Dr. Walton, are you familiar at all with the quality of the raw water which is processed by other cities on the Missouri River who take their drinking water or water for domestic use from the Missouri?

A. With a limited few.

Q. And with what cities are you acquainted?

A. Kansas City, St. Louis.

Q. Do you have any knowledge concerning the quality of the water at the St. Joseph, Missouri, intake?

A. I did not include the St. Joseph plant in my studies.

Q. As far as Kansas City, is it Missouri or Kansas, sir?

A. Both.

Q. Both. How does the quality of the water at Kansas City, Kansas, and Kansas City, Missouri's intake compare so far as the level of pollution is concerned with that at the Omaha intake?

A The coliform density at Kansas City, Kansas, is higher than at Omaha in the raw water.

Q. Yes, I should include that in my question. How about Kansas City, Missouri?

A. At Kansas City, Missouri, it is higher than at Omaha.

Q. Have you referred--

A. This is--pardon me.

Q. Yes, sir.

A. This is based to the period of time I was in the plants, data. I can not give the exact years, but probably around 1954, '55; not current information.

Q. Doctor, we haven't had much current information. The figures we are using are for 1953, which--

MR. EDELMAN: Oh, they go through 1958 I think the witness testified, Mr. Davis.

A. For Omaha I gave you '53-'58.

Q. (By Mr. Davis.) Yes. Well, can you percentage-wise or in any way that you wish compare the quality of the raw water as far as level of pollution is concerned between the cities where you made your studies, to wit the two Kansas Cities?

A. And Omaha. To the best of my memory, at the time I analyzed the data used in some of my publications, the coliform density at Kansas City, Kansas, was in the neighborhood of--this is average picture--

Q. Right.

A. --not daily or maximums. It is an over-all average for about a year period.

Q. Yes. You use averages--

A. Was about twice that at Omaha. I can not say exactly, but this is approximate.

Q. You are using averages, since I have in my figures, rather than means. In the Government's Exhibit No. 4 in a report of their test which is the study of the lower Missouri River Basin issued in 1952, October of 1952, the average coliform count given at the Florence intake was 32,000, the average at Kansas City, Kansas, was given at 70,000?

A. This is approximately in line with what I said too.

Q. Yes. So that bears out your studies that about the level of pollution is about twice as much at the Kansas City cities. Do you have any information concerning whether or not the water supplies at the two Kansas Cities meet the minimum standards which you have described?

A. I have never examined the samples from the distribution system, which would have to be considered. I have examined effluent samples and certainly I would have no--from the information available I have no reason to doubt that they can not meet -- they do not or did not meet Public Health Service standards.

Q. So it is possible to treat successfully raw water the level of pollution of which, to use your words--

A. It is possible--

Q. --considerably exceeds that at Omaha?

A. It is possible to treat water with coliform densities such as you indicated to produce a water meeting the coliform density requirement or the coliform requirements of accepted drinking water standards.

Q. Now, you and I both understand that in such a case you do have more of a taste and odor problem from the chlorine, is that correct?

A. This is certainly possible.

Q. Yes. And all of my questions are directed solely to whether or not the water meets the standards as to purity.

A. As to the coliform.

Q. As to coliform.

A. Only.

Q. All right, sir.

A. Only.

Q. Now, in the Government's Exhibit 4, the report in October '52, and in your testimony here, the standard for acceptable raw water that has been used was a coliform count of five thousand per hundred milliliters, am I correct?

A. You are correct in the number.

Q. Well, I am not sure I am correct on the milliliters.

A. The milliliters is correct.

Q. Yes. Which would be actually how much in--well, here is what I am getting at, Dr. Walton. In July a witness said, as I understood it, or at least I have some information, that that amount of water is about half a glass full. Is that close?

A. No. There are 454 grams in a pint. A milliliter is about a gram, so you have a quarter of a pint in a hundred milliliters of water, roughly.

Q. When was this standard established by the United States Public Health Service?

A. May I correct you? It is not a standard.

Q. All right, sir. What is it, Doctor?

A. It is a recommendation.

Q. A recommendation. Well, that leads me on. By whom was the recommendation made?

A. I can not tell you the date on which it was first made by the Public Health Service. It was certainly based on Streeter's work.

Q. Of course. But it is a recommendation, it is not a standard, and is, of course, not a matter of statutory law--

A. Right.

Q. --requirement, is it?

A. Right.

Q. All right, now--

MR. EDELMAN: I think that is a little too broad. You mean as far as the Federal Government is concerned or states or municipalities or cities? I don't know whether the witness can testify that there is no law in the United States by anybody.

MR. DAVIS: I will limit it to Federal law.

A. My answers have been in terms of Federal.

Q. (By Mr. Davis.) Yes. And I am at fault in not specifying that in my question, Doctor.

A. All right.

Q. So it was a recommendation which was the result of someone's studies made about when?

A. In the late 20's or during the 1920's.

Q. And who was the individual or individuals who made this study?

A. Harold Streeter was the primary individual in charge of the work.

Q. (By Chairman Wilson.) What was that name?

A. Harold Streeter.

Q. (By Mr. Davis.) Now, with whom was he associated at that time?

A. With the U. S. Public Health Service.

Q. I do not know whether the gentleman still survives. Does he?

A. He does.

Q. And is he still with the Public Health Service?

A. No. He is retired.

Q. When he made these studies where did he make them?

A. He was working at the old Cincinnati station at Third and Kilgore.

Q. Where you now are stationed, as I understand?

A. We are in a new building, yes, but still in Cincinnati.

Q. At Cincinnati. His recommendations specifically were what?

A. He--I am not sure that he made the recommendations. I said it was his data that was used.

Q. All right.

A. He made a study of some 35, roughly, water treatment plants along the Ohio River, in the Great Lakes, in the region of Ohio, Pennsylvania, New York, I am not sure, that were not on either the Ohio River or Great Lakes, and from the analysis of the data that he collected he concluded that when the raw water coliform density exceeded five thousand per hundred milliliters the plant, the average plant or possibly slightly less than average, was not capable of producing a water conforming with the accepted standards of that time.

Q. This recommendation, to your knowledge, has been the standard--and correct me if I am using the wrong terminology--used by the United States Public Health Service in all of its studies concerning the alleged pollution in the Missouri River Basin as evidenced by their Exhibit 4, the '52 report?

A. This is something that I think involves an interstate compact, probably, on the Missouri and I am not familiar with their objective.

Q. Fine. By that I understand that you do not know what the standard is that they are trying to use for such studies?

A. Yes.

Q. Now, in 1923 when this study was made, the recommendation came out that raw water should not exceed five thousand because water plants were not capable of processing it. Have I said it generally correct?

A. I believe you have.

Q. As far as the measurement of coliform bacteria, can you--well, can you explain to the Board, what is the Phelps Index?

A. The Phelps Index or indicated number was a means of arriving at an estimated coliform density in a sample of water.

Q. Can it be applied or was it used, and I am not sure of my phraseology here, in arriving at these counts that you used in Omaha?

A. The counts at Omaha were determined by the most probable number procedure, which is a statistical estimate of the number.

Q. If the Phelps Index had been used in making the recommendation of Streeter of five thousand, would it have changed his figures or that figure?

A. It would have changed his figures--if the Phelps figure had been used?

Q. Yes.

A. Streeter actually used the Phelps figure.

Q. On five thousand?

A. Yes.

Q. Since this recommendation was made, this Government standard established, has there been any change in water purification equipment?

A. There certainly has.

Q. In fact, in 1923 the use of chlorine was in its infancy, was it not?

A. I am not sure how much it was in its infancy, but it wasn't as extensively used as today.

Q. Could you generally describe how much or what changes, rather, have been made in water purification equipment since 1923?

A. Would you accept water treatment processes--

Q. Yes, sir.

A. --instead of equipment?

Q. In every answer you make I will accept your phrases. I am not sure of mine.

A. I think the major change has been in the more intensified chlorination used, the maintenance of available standby equipment and equipment permitting high levels of chlorination, if possible. There have also been improvements in coagulation and sedimentation. As late as 1930 when I received my Bachelor of Science in Sanitary Engineering they talked about a formation of a schmutzdecke. We were taught that it was desirable to have a residual turbidity in the coagulated water and settled water to form such a schmutzdecke. Current water treatment plants, based on those I studied, those that were not softening plants, provided most of the time turbidities in the water applied to the filter of less than five units. There have been some improvements in rapid sand filtration, probably the principal one is the use of surface wash which maintains a filter in better condition. I probably should also mention we have certainly better qualified personnel to operate plants, better equipped laboratories in general. I believe that roughly covers the picture.

Q. Dr. Walton, in recent years have you conducted any studies relative to the improved efficiency of water purification processes in the United States?

A. I have.

Q. Over what period of time were these studies conducted?

A. I might modify this statement in one way. I collected information which I analyzed.

Q. Right.

A. In general the information used was water or data from actual water treatment plants over the period. Most of it I think ranged from 1952 through probably 1955. I collected it largely during the years '55 and '56.

Q. Could you give the number of the plants that were involved in your study?

A. I used data from about 58 water treatment plants all together.

Q. And these were located generally, if it is possible to so describe them, where?

A. Throughout the large part of the United States from El Paso to Massachusetts, from Minneapolis to Georgia, I believe, or thereabouts.

Q. Was there one plant in Canada involved?

A. No plants in Canada.

Q. No plants in Canada. Based on your collection of data and the study of it, did you form certain conclusions concerning the improved efficiency of water treatment?

A. As measured by coliform removal, yes.

Q. And did you form certain conclusions as to the use of the five thousand figure in establishing a standard of pure water?

A. As far as being able to conform with the bacteriological requirements of accepted standards.

Q. Which has to do with coliform organism?

A. It has to do with coliform.

Q. Yes, we understand each other then. Now, following this study did you on May 7, 1956, at St. Louis, Missouri, before the Diamond Jubilee Conference present a paper entitled "The Relation of Treatment Methods to Limits for Coliform Organisms in Raw Water"?

A. I did.

Q. Now, in that report, of course, you describe your plant studies and did you reach or did you say in your conclusions, commencing on page 1288 of the Journal of American Water Works Association report, did you state as follows: "Data"-- Or should I say "data"?

A. Take your choice.

Q. All right. --"have been presented showing that adequately designed and well operated water treatment plants can treat raw waters heavily laden with coliform organisms to produce effluence conforming to the bacteriological requirements of the United States Public Health Service for drinking water"?

A. I believe that is a correct quote.

Q. And did you say also in your conclusions, on page 1289 of the report that I am using: "Indications are that the current United States Public Health Service recommendation with respect to the density of coliform organisms in raw waters acceptable for treatment in modern, well-operated plants are no longer applicable"?

A. I believe that is part of a paragraph.

Q. Now, did you also present a similar paper on January 8, 1958, before the Conference on Sanitary Engineering at the University of Kansas at Lawrence, Kansas?

A. I presented such a paper. I am not sure of the date right now. I don't see the --the date is probably correct.

Q. That would be at least within the last year and a half. Did you in that paper make this statement in your findings: "There has been considerable progress in the science of water treatment since the period of Streeter's studies. Chlorination, together with improvements in other processes, has made it possible to treat raw waters containing coliform bacterial loading far in excess of the permissible loading recommended by the Public Health Service. If new raw water bacterial quality objectives are to be based on the capacity of treatment processes to remove coliform bacteria, the present recommended permissible loading may be increased many fold." Is that a correct statement?

A. That is a quotation.

Q. In your conclusions did you say: "Adequately designed and well-operated conventional rapid sand filtration and disinfection plants can treat raw waters heavily laden with coliform bacteria to produce effluence conforming to the bacteriological requirements established by the Public Health Service for drinking water"?

A. I can't quite find my place here.

Q. It is the third paragraph of your conclusion, sir.

A. Would you mind reading it again? Let me check and see if the wording is identical.

Q. Yes. Do you have the third paragraph?

A. I have--have you the mimeographed copy?

Q. Yes, page 11.

A. It may be slightly different in that.

Q. All right, here is the quotation as I have it: "Adequately designed and well-operated conventional rapid sand filtration and disinfection plants can treat raw waters heavily laden with coliform bacteria to produce effluence conforming to the bacteriological requirements established by the Public Health Service for drinking water. More intensified chlorine application has made this possible."

A. I believe that is probably a correct statement, quotation. It is not quite the same in the published thing, but it is a very minor change.

Q. In the studies that you made, Dr. Walton, which resulted in the conclusions as expressed in your papers that you presented to these professional groups, did you in your reports make a list or did you attach tables or appendices showing the amount of the coliform bacteria in the raw water used by the various plants?

A. I have such information.

Q. Yes. Does it come to your mind without referring to the tables?

A. Within reason.

Q. Well, of the plants that you studied what was the highest average of coliform organsims in the plants in the raw water which were successfully treated so that the finished product, the effluent, met Public Health standards?

A. Now, by Public Health Service standards you are referring to coliform organisms only?

Q. Yes, sir. And I am referring, of course, to the standards that you mentioned in the finished product.

A. I think it is covered in the publication, but I offhand think it exceeded a milliom.

Q. My difficulty, Doctor, is that I don't understand the tables. That is what I was asking you to explain your own language. Am I to assume from what you have just said that in one or more of the water purification plants that you studied there were over one million coliform organisms?

A. This is true.

Q. In the raw water before it is processed?

A. Right.

Q. Now, what period of time was covered by your study? How long did it cover? I mean at this particular place.

A. I usually took two years of data from each plant.

Q. All right.

A. Now--

Q. Was there more than one plant that had more than a million coliform count?

A. I believe there were-- Now, you mentioned average. I am not sure what period you are referring to. You could have a monthly average, you could have an annual average.

Q. Well, what did you use in your study, Doctor?

A. Well, I considered each of them.

Q. Each of them. All right.

A. Which would you like?

Q. What would be the more informative to the Board. Would plants qualified by monthly raw water coliform density be better?

MR. EDELMAN: Is counsel asking the witness what would be more informative for the Board or are you asking the Board that question?

MR. DAVIS: I am asking him and the Board.

A. It is the Board's place to answer, not mine.

Q. (By Mr. Davis.) Well, you used a monthly run at Omaha?

A. I analyzed Omaha's data each way.

Q. By "each way" you mean--

A. I am sure I considered it by the annual picture and then I later considered it by the monthly picture.

Q. I see. Well, did you make any study of these water purification plants where you used the monthly average or arithmetical average of the MPN per one hundred milliliters?

A. If your table numbering agrees with that in the published proceedings, it would be table eight.

Q. Yes. Now, Dr. Walton, in this period of two years in the plants where the monthly average exceeded a million, that is coliform density, upon how many occasions did the finished product, the effluent, fail to meet the standards for water purity which you mentioned?

A. Remember, I was only taking plant effluent samples, not distribution samples, that the public health standards or the accepted standards are based on a given number of samples from representative points throughout the distribution system. Probably I am taking the most advantageous point, but it is the only point that I can judge treatment by.

Q. Correct. Because otherwise later on in the system you have such things as bird dropping in reservoirs, and so forth?

A. All I can say is that of the total months examined for all plants there were 17 months in which--these may have been from or I think they were probably from two plants largely--in which the coliform density in the raw water equalled or exceeded one million, this monthly average. In none of those months did the plant effluent samples data provided by those plants have a coliform data to equal more than two percent of all ten milliliter portions examined during the month positive.

Q. What percentage, if I may refer back to your direct examination, is the standard used by the public health?

A. The standard used by the Public Health Service again applies to samples taken throughout the distribution system and permits not to exceed ten percent.

Q. So far as the percentage is concerned, these plants with a million were well within if they had two percent instead of ten percent?

MR. EDELMAN: I object. That is not a fair assumption, Mr. Chairman. I think the witness has testified that the Public Health Service permissible count is based on samples taken from various points throughout the plant in the distribution system. He has several times testified that the samples he is talking about in his report were not taken in accordance with the Public Health Service standard on which the water quality standards are based.

Is that correct, Dr. Walton?

THE WITNESS: That is correct.

CHAIRMAN WILSON: Are you pressing the question, Mr. Davis, in view of the answer?

MR. DAVIS: Yes.

MR. EDELMAN: In view of the objection. All right.

Q. (By Chairman Wilson.) I will ask the witness if he is able to answer the question as it was asked?

A. May I have the question again?

Q. (By Mr. Davis.) Dr. Walton, I am referring only to your figures in the way you conducted the test.

A. Yes. The indications are that the plants could supply water which would conform with accepted drinking water standards.

Q. Fine. In all cases of plants that you have tested in the million group, million or above?

A. Yes.

Q. All right. Were some of the plants within a group which you characterized as having a monthly arithmetical average of coliform density of from five hundred thousand to nine hundred ninety thousand?

A. What was the question again? You are referring to monthly?

Q. Yes.

A. All right, now--

Q. Your table "A".

A. What was the question?

MR. DAVIS: Can you read it?

(Question read.)

A. Correct.

Q. (By Mr. Davis.) How many months or plant months were in that group?

A. There were 18 plant months.

Q. In how many of those 18 months was the finished product, where you tested it, such as to make you believe that the water would comply with public health standards?

A. Eighteen.

Q. How many plant months were involved in the one hundred thousand to four hundred ninety thousand group which you studied?

A. Fifty-three.

Q. And in how many of those months would you believe that the water as the finished product, the effluent, would comply with Public Health standards?

A. All 53 of them.

Q. You had a group of 50,000 to 99,000, speaking of monthly arithmetical average, the raw water coliform density per hundred milliliters?

A. Correct.

Q. Now, in that 50,000 to 99,000 how many plant months were included in your study?

A. One hundred twenty.

Q. And in how many of those months was the effluent such as to indicate it would be within the Public Health standards?

A. I would like to qualify my answer at this point. To me three of those plant months would indicate unsatisfactory treatment, this is below Public Health Service standards, that from my studies it would indicate a deficiency of facilities or operation of the plant for three of those months.

Q. Right. In other words--

A. It is not exceeding the 10 percent figure, mind you.

Q. Yes.

A. But--

Q. There was evidence that something had gone wrong in the plant's operation?

A. As far as in my opinion.

Q. I am not sure, Doctor, as to what your testimony on direct examination was, so I would like to ask you about the next group. How many plant months were in the group of 10,000 to 24,000?

A. Down to 10 to 24. Two hundred--three hundred thirteen.

Q. And during how many of those months was there any indication that the effluent would not meet the requirements of good water, pure water?

A. I consider three of those plant months as indicating a deficiency in either treatment facilities or plant operation. I am not saying that the water did not conform with accepted drinking water standards, though.

Q. I understand.

CHAIRMAN WILSON: Just a minute, Mr. Davis.

I would like to have the record show that Mr. Poole has asked to be excused for a little longer recess. He isn't feeling well. He is just recovering from the effects of a long siege of the flu and there will still be a full quorum of the Board present, inasmuch as he is not one of the members representing any required agency.

MR. EDELMAN: The Government has no--

CHAIRMAN WILSON: Just a minute. Is there any objection on the part of any counsel to excusing Mr. Poole as far as necessary on account of his condition and his returning later, with the understanding that whatever material testimony may come in in the meantime will be brought to his attention?

MR. DAVIS: No objection, Mr. Chairman. In fact, if you want to adjourn all of us early to try to beat the school teachers to lunch, why, that will be all right with the city too.

MR. EDELMAN: The Government has no objection to excusing Mr. Poole.

CHAIRMAN WILSON: Very well. It will be so understood.

What was that?

MR. DAVIS: I have no objection to your adjourning early now in order to cope with the luncheon problem we had yesterday.

CHAIRMAN WILSON: Well, I think it is a little too soon.

MR. DAVIS: Yes. Well.

CHAIRMAN WILSON: That clock is a little slow, but it isn't half past 11 yet. I think we had better use all of the time in view of the fact we took an early recess. We will adjourn a little before noon.

Q. (By Mr. Davis.) You had another group, Doctor, of 5,000 to 9,900--

A. Correct.

Q. --monthly arithmetical average of coliform density in one hundred milliliters of raw water. How many plant months were in your study?

A. That was 5,000 to 9,900, wasn't it?

Q. Yes, sir.

A. Two hundred eleven.

Q. And in those plant months in how many instances was the finished product, the effluent, satisfactory under your standards?

A. In my opinion there was a deficiency in facilities or operation in one month.

Q. And the group where the coliform density ran from zero to forty-nine hundred, how many plant months were in your study of that?

A. Three hundred thirty-nine.

Q. And of those plant months in how many of them was the product satisfactory?

A. In my opinion there was a deficiency in operation or facilities in seven months.

Q. So confirming the conclusion that you reached in your discussion that water treatment plants can treat raw waters heavily laden with coliform organisms to produce effluents conforming to bacteriological requirements of the United States Public Health Service for drinking water, by "heavily laden" you mean as high or higher than one million?

A. As far as reducing the coliform--

Q. Right.

A. --are concerned, yes.

Q. And that of course is all that I interrogated about. Now, the two papers that I referred to were dated 1 October '56 and one in '58, if you accept my date, January '58. In those both you indicate that "the current United States Public Health Service recommendations with respect to the density of coliform organisms in raw waters acceptable for treatment in modern well-operated plants are no longer applicable." Is that still your feeling?

A. I would say that is still my feeling with certain reservations, which I am in a very difficult position to answer.

Q. I am, of course, referring you, Dr. Walton--I don't mean to--I don't want you particularly to get the impression that I am trying to be unfair or take anything out of context.

A. No. No, I am not.

Q. I am referring only to the density of coliform organisms. Up to this--

A. If we assume it is only on coliform, I pointed out before that coliform organisms are an indicator organism.

Q. Right.

A. There is some question in my mind whether all pathogenic organisms that might be present in sewage are as equally susceptible to destruction or inactivation by chlorine as coliform bacteria are. This is a reservation that I would like to merely express. I don't know the answer. I don't know who does.

Q. Thank you for your last statement, sir. The purpose of my questioning, Dr. Walton, and I will ask you again concerning these standards, is this: Since 1954, in all of the proceedings in which the city has been involved and in all of the data that we have been furnished with, although it now appears there is other data that we do not have available, the test for the degree of pollution that has been used has been the coliform count and the standard of that has been 5,000. Now, limiting your answer to that, do you believe that that standard, insofar as the purity of the finished product of the water is concerned, should be applicable?

MR. EDELMAN: Mr. Chairman, I must object to the question. I think the witness has already indicated that he is unable to testify as to the purity of the finished water product except with respect to the presence or absence of coliform bacteria.

MR. DAVIS: Right.

Q. (By Mr. Davis.) And that is all I am asking you about, sir.

CHAIRMAN WILSON: You can answer the question, Doctor, if you are able to answer it.

A. There is no question in my mind that the 5,000 objective could be liberalized somewhat insofar as the ability of a water treatment plant to produce a water meeting current acceptable bacteriological requirements for potable water.

MR. DAVIS: I have no further questions, Mr. Chairman.

CHAIRMAN WILSON: Any other counsel for any other parties wish to cross-examine?

Have the members of the Board any questions? I assume that the Government may wish to have some redirect examination. But have the members of the Board any questions?

MR. SAMSON: I have.

CHAIRMAN WILSON: Mr. Samson.

Q. (By Mr. Samson.) Doctor, the coliform organism, is that a bacteria?

A. That is a bacteria.

Q. Is it found predominantly or does it predominantly inhabit the intestines of a man and animal?

A. It has been predominantly associated with warm-blooded animals, including man.

Q. From the intestines of the man or animal?

A. I believe that is correct. We have a bacteriologist who is probably better qualified to answer that question than I am.

Q. Very well. I didn't know that, Doctor. Now, is the coliform count a sort of a guide or a determination to determine what the degree of pollution is in a stream?

A. I consider it as such.

Q. Are there other pathogenic organisms commonly present in a stream that has a lot of or has a high coliform count?

A. The ratio of pathogens to coliform bacteria I would hesitate to venture, but the higher the coliform densities the greater would be the probability of the presence of pathogens.

Q. Now, another one of the pathogenic organisms that might be present or that is present generally with the coliform organisms is the enterococcus, is that right?

A. I think this is true. I prefer this to be handled by the bacteriologist.

Q. The enterococcus--and if you think a bacteriologist should answer this question I will defer my question--but is that another pathogenic organism associated generally with the staphyl family?

A. I would prefer the bacteriologist handle that question.

Q. Could you tell the Board predominantly where that organism comes from as far as man or other warm-blooded animal is concerned?

A. I would prefer the bacteriologist to answer that question.

Q. Very well. Now I have one last question and that is in connection with chlorination. What is chlorine?

A. Well, it is a chemical element used in water treatment for disinfection purposes, usually in the form of a liquid or gas, received in the form of a liquid or gas.

Q. At any rate, it is a chemical that is added?

A. It is a chemical.

Q. I see. What, if any, is the health hazard involved of drinking water that is heavily chlorinated?

A. I believe there were some studies made for the--I think they were made by or in charge of Mr. Muegge of Wisconsin-- that indicate that in all probability you would chlorinate to the point where the water would be rejected from the esthetic sense prior to it being injurious. I am not sure of this. I know some plants, some water plants have substantial chlorine in the water delivered to the consumer. I believe the statement was made at the AWWA in Dallas that El Paso carried as high as three parts per million chlorine in their distribution system.

Q. (By Chairman Wilson.) How many parts was that?

A. Three parts. I believe that is correct. Mr. Metzler, I believe, can verify that figure if I am correct, may remember the same statement.

Q. (By Mr. Samson.) How does that manifest itself as far as the health of an individual is concerned should you become involved with excessive chlorination?

A. You mean ingested in water?

Q. Yes.

A. I think I would probably reject the water from the taste or smell standpoint before it would be--I would consider it injurious to me.

Q. My question was that if you didn't reject the water because of the esthetic problem, what would be the nature of the physical--

A. I am not qualified to answer this.

Q. Very well.

A. This gets into something other than engineering.

MR. SAMSON: Thank you very much, Doctor.

CHAIRMAN WILSON: Mr. Metzler had a question.

Q. (By Mr. Metzler.) Yesterday, Dr. Walton, Mr. Trester testified that there had been an increase in taste and odor problems in the finished water at Omaha. In your opinion are these aggravated by enrichment of the raw water from industrial domestic wastes?

A. This could well be so. I don't--I am not familiar with local conditions, but enrichment of water will sometimes cause growth that will produce taste and odor producing substances.

Q. Well, now, does taste and odor in the drinking water have ramifications that are detrimental to public health in addition to whatever esthetic?

A. In my opinion, yes.

Q. In what way?

A. A water that is rejected by the public or a portion of the public for esthetic reasons, which tends to cause them to go to other sources for their water, bottled water, springs, whatever sources might be available, is likely to lead them to use a water which has less control over it, which is less safe, than that they received from the faucet in their home.

Q. I have one other question, then, relating to treatment specifically. I was interested in your testimony about plain sedimentation, as I understand it, that they have at Omaha?

A. Yes.

Q. Now, isn't plain sedimentation rather unusual to water--you indicated these many surface water supplies you had studied. Is it usual to put in plain sedimentation ahead of all this other purification which you talked about?

A. I would not consider it a usual practice.

Q. Where is plain sedimentation usually employed and for what purpose?

A. It has been used very extensively, I believe, in the Missouri River Basin, because of the turbidity which will readily settle without the aid of coagulants in the Missouri River water. This picture may be changing with the dams, I can not tell you.

Q. Does this drop-out of the silt load also have any substantial effect and does the pretreatment through plain sedimentation have any substantial effect upon the coliform loading as it goes into the rest of the treatment process?

A. I have attempted to analyze some of my own data, some of the data that I collected. The results are interesting. I have very limited data to work with. The time elements involved here, short time sedimentation probably has very little value in removing the loading of coliform density on a plant. When you get up to something like two days it seemed to have a definite value at higher loadings in the raw water. When you get down to low loadings in the raw water there seems to be zero or even negative removal sometimes. This may be tied in with the idea what is the time lag through the reservoir. I tried it in various ways, came out with about the same result, whether I took simultaneous daily standards or staggered, so on, it still produced about the same result. Very substantial reduction at high loadings, negative at low loadings.

MR. METZLER: I think that answers my question, Mr. Chairman.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: I have one.

CHAIRMAN WILSON: Do you want to proceed with redirect?

MR. KURYLO: I have just one.

CHAIRMAN WILSON: All right.

Q. (By Mr. Kurylo.) On cross-examination you began to refer to one or more instances in which the public water supply was found, I think you used the word, "incriminated" for some reason or other. Would you please amplify the statement you began to make at that time?

A. I mentioned that I had been primarily concerned with checking into any available information where available evidence indicated that water had been treated to conform with accepted drinking water standards.

MR. DAVIS: I am very sorry, Mr. Chairman, but I didn't hear the answer. Might I have Mrs. Rankin repeat it?

CHAIRMAN WILSON: Will the reporter please read the answer.

(Answer read.)

MR. DAVIS: Thank you.

A. In the literature I find three instances where water was incriminated as an agent in the transmission of disease or illness and apparently conformed with the bacteriological requirements of accepted drinking water standards. One was a typhoid outbreak in 1935, Minneapolis, Minnesota, 213 cases. Not recorded in this table, I believe there were some gastroenteritis accompanying that, although I am not positive of this. And the statement made in this textbook is "Insufficient chlorine treatment during period of unusual raw water pollution." I can vouch, because I have seen the report of the State

Health Department on this, that the chlorine residual was very low in the finished water, and based on my personal opinion I would agree with the statement that there was insufficient chlorination. The second did not involve complete treatment. It was at Milwaukee, Wisconsin, where they were treating by simple chlorination, and there is pretty sound evidence that they had innumerable--the figure is given here of 120,000--cases of gastroenteritis. I have read the report prepared, I think, jointly by the State Health Department and some of the people at Milwaukee and there is pretty good evidence that it was water borne by the public water system. This is tied in with the fact that people using other sources of water in the immediate area did not have an attack rate comparable. The third one is not mentioned in this and that was a Veldee's study of a series of outbreaks originating apparently up around Charleston, West Virginia, on the Kanawha River, and progressing in a chronological order downstream on the Kanawha and the Ohio River. In concluding, Veldee indicates he did not know whether the causative agent was chemical or biological. There have been other instances. In this particular table before me there is noted at Detroit, Michigan, 1926, 45,000 cases of dysentery and gastroenteritis, 8 of typhoid. Merely the statement is made here, "Inadequate purification." Springfield, Missouri, 35,000 cases--1936 this was-- 35,000 cases dysentery and gastroenteritis, 197 of typhoid, 45 deaths, "Insufficient chlorine treatment." You could probably find others. That table I am taking is from Hopkins and Elder, the Practice of Sanitation, page 1112. Does that--

Q. As I understand your answer, it means that notwithstanding the fact that the water had met the recommended standards of the Public Health Service after it passed through its treatment processes, nevertheless the water was found to be the source of disease?

A. All available evidence seems to point to the water as the agent through which disease was transmitted.

MR. KURYLO: I have no further questions.

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Samson.) I have just one more question that occurs to me, Doctor, and it will be very short. That has to do with your remark on that you do not know if chlorine will affect other pathogenic organisms as it affects coliform organisms. Would a bacteriologist be able to answer that question if one is produced here?

A. I think I might venture a little information, although I do not consider myself particularly qualified. In this country, based on epidemiological evidence, which is not as complete as we would like to have it, naturally, there seems to be no major problem. These cases go back, those that I have cited, to '35 and preceeding for a period of over 20 years. We have had no occurrence of a breakdown indicated due to inadequacy of water treatment, providing it was treated to comply with bacteriological requirements accepted for drinking water standards. There is definitely, however, laboratory evidence that some pathogenic organisms are not inactivated.

Q. Are not what?

A. Are not inactivated or destroyed at chlorine levels which will inactivate and destroy coliform bacteria. So these things have got to be reconciled before we know the answers.

Q. And that other organism might be such an organism as the enterococcus?

A. I will leave this for the bacteriologist.

Q. All right, thank you very much.

A. I am not familiar enough with enterococcus to cover it.

MR. SAMSON: Thank you.

CHAIRMAN WILSON: Any other questions by the Board?

In view of the suggestion that we take an early noon recess, I think it is about time, unless some counsel has one or two questions they desire to ask this witness before we take the recess.

MR. DAVIS: Will he be on the stand following the recess?

MR. EDELMAN: We have some further questions, Mr. Chairman.

CHAIRMAN WILSON: Yes, it will be understood that Dr. Walton will be recalled.

Now, is it satisfactory if we advance the convening this afternoon to 1:15?

MR. STEIN: That is satisfactory.

MR. DAVIS: Yes. I understand that I may ask the doctor--

CHAIRMAN WILSON: Just a minute.

MR. DAVIS: --questions which are material to the questions, particularly Mr. Samson's questions, on our return at sometime?

CHAIRMAN WILSON: That may be understood.

MR. DAVIS: All right.

CHAIRMAN WILSON: We will take a recess until 1:15 this afternoon.

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WHEREUPON, the hearing stood at noon recess until the hour of 1:15 o'clock in the afternoon, at which time the following further proceedings were had and entered of record, to wit:

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AFTERNOON SESSION, TUESDAY, MARCH 24, 1959

CHAIRMAN WILSON: The meeting will be in order. Let the record show all members of the Board present except Mr. Poole.

There has been some further discussion during the noon recess about this matter of having a night session and it seems to be the opinion of counsel that we are likely to run over into Thursday and maybe into Friday anyway. Oh, I see Mr. Davis isn't here yet.

MR. DAVIS: I am here, sir.

CHAIRMAN WILSON: Oh. In that event, a night session wouldn't accomplish the hoped for result of saving a full day. But it might turn out that without a night session we might not even get through this week and that would create some complications, because a number of members of the Board, and I am sure others in attendance here, would run into some difficulties if they have to come back here for another week.

The alternative was suggested that we might work a little later this afternoon, say have a double recess this afternoon and work up until 6 o'clock. And then as we work along tomorrow, tomorrow noon we can review the time schedule again and consider whether we would want to work later tomorrow afternoon in view of the fact that we are going to have a boat ride or perhaps go for an evening session tomorrow in order to make sure of getting through this week. I will be glad to hear from counsel or any others interested about those proposals.

How about you, Mr. Stein?

MR. STEIN: We are in agreement with those proposals, sir.

CHAIRMAN WILSON: What is it?

MR. STEIN: Those proposals are perfectly agreeable to us.

CHAIRMAN WILSON: That is either way?

MR. STEIN: Either way.

CHAIRMAN WILSON: That is a longer afternoon session or evening session?

MR. STEIN: Yes.

CHAIRMAN WILSON: Do you have any preference between a long afternoon session and an evening session?

MR. STEIN: If the afternoon session can be continued and we can get more work done we would be more interested in concluding the hearing a day earlier and go into evening sessions.

CHAIRMAN WILSON: Well, the reporter advises me that she wouldn't want to undertake evening sessions unless we are sure of saving a day. She would be willing to go for evening sessions if we can be sure of saving a day. Otherwise, she would prefer to work until 6 o'clock this afternoon.

Well, what about counsel for the city? What ideas do you have on the subject?

MR. DAVIS: I am agreeable, Mr. Chairman, to extending the time today. I still view the evening project dimly. I am sure that you appreciate as an attorney that in these matters we do need certain periods of time outside the actual trial to arrange for the attendance of witnesses, and I, of course, have no way of knowing when I start doing that. So that I will need some time in which to do that even if it is in the evening, and working in the evening would complicate that factor. But I am counting on having an hour or two Wednesday away from the courtroom in order to arrange my witnesses. So that is rather an involved way of saying I will be glad to work until 6, but I would hate to come back.

CHAIRMAN WILSON: Will it be agreeable with you to work until 6 o'clock this afternoon?

MR. DAVIS: Yes.

CHAIRMAN WILSON: Then it will be understood that we will take two recesses this afternoon and work until 6 o'clock and not have an evening session this evening.

MR. DAVIS: With one exception, that I am assuming I will not be called on to produce any testimony. In other words, my case won't start this afternoon.

MR. EDELMAN: Mr. Chairman, at the rate the testimony is progressing I think we can assure Mr. Davis he will not be reached this afternoon.

MR. DAVIS: Fine.

CHAIRMAN WILSON: Do the Government counsel think you can get through this afternoon or will you consume the entire afternoon if we run until 6 o'clock?

MR. STEIN: At the rate that the questioning is progressing we do not believe we will be through this afternoon. If the cross-examination and examination from the Board would consume about equal time to the time it takes us to present the Government witnesses, we can assure you that we will be through this afternoon.

CHAIRMAN WILSON: Well, with the understanding that the city and the other interested parties will not be called on to start their case this afternoon, we will work until 6 o'clock.

Now, I have just been informed that there might be one or two witnesses representing the state agencies that would be greatly inconvenienced if they have to stay over until tomorrow and for that reason, if there are any such whose testimony could be briefly disposed of, I would suggest that they be called now if counsel for the major parties don't have any objection. Is there any objection to that on the part of the Government?

MR. EDELMAN: No objection.

MR. STEIN: None at all.

CHAIRMAN WILSON: How about the city, do you have any objection?

MR. DAVIS: It is all right, Your Honor, until we find out who is--

CHAIRMAN WILSON: Well, then, I will ask--

MR. DAVIS: Except you are going to finish with Dr. Walton, aren't you, first?

MR. EDELMAN: It is my understanding the Chair was going to excuse Dr. Walton temporarily.

CHAIRMAN WILSON: No, I don't plan to interrupt Dr. Walton's testimony. I am just making that inquiry now before we proceed with his cross-examination.

Are there some-- There was one mentioned to me, Mr. Filipi?

MR. FILIPI: Yes, sir.

CHAIRMAN WILSON: You represent the State of Nebraska

MR. FILIPI: Yes, sir.

CHAIRMAN WILSON: Now, are there others? Representing what states.

MR. PATTERSON: I represent a municipality in South Dakota.

CHAIRMAN WILSON: And who else?

MR. EDWARDS: E. L. Edwards, representing the Corps of Engineers, Omaha.

CHAIRMAN WILSON: There was another one over here.

MR. HENATSCH: Harry Henatsch, attorney in Omaha.

CHAIRMAN WILSON: Now, I will ask the Secretary to interview--

MR. HILLEBRANDT: One more.

CHAIRMAN WILSON: --all these witnesses who have just now expressed the desire to be heard this afternoon and as soon as we finish with Dr. Walton's testimony give me an estimate of how long they will take. So if you gentlemen will be figuring about how long each of you will take and report that to the Secretary, along with your agencies that you represent, we will consider hearing you just as soon as we get through with Dr. Walton.

MR. HILLEBRANDT: I would like to enter my name there too. Hillebrandt.

CHAIRMAN WILSON: Report to the Secretary. That is Mr. Ayers, the Secretary. If all of you will confer with him right now so he can give us an estimate of about how much time might be required, as soon as we are through with Dr. Walton.

(Off the record.)

CHAIRMAN WILSON: You may proceed, Mr. Davis. You were ready to undertake the cross-examination, were you not?

MR. DAVIS: I was just on the subject, Mr. Chairman, that Mr. Kurylo had inquired about, to straighten out a misunderstanding I may have or that--

CHAIRMAN WILSON: Oh, I beg your pardon. Were you finished with your cross-examination?

MR. DAVIS: Yes. The Board was questioning the doctor.

CHAIRMAN WILSON: And you had nothing further after the questions that were asked before?

MR. DAVIS: No, but I do have some questions concerning what was brought out by Mr. Kurylo.

CHAIRMAN WILSON: Very well, go ahead with that, then.

MR. EDELMAN: Mr. Chairman, as I understood it, the Government is entitled to redirect, but I will yield to let Mr. Davis ask his question at this point.

CHAIRMAN WILSON: I think it would be preferable to complete the entire cross-examination of the city first in view of the questions and evidence that were elicited by the Board members.

MR. EDELMAN: Very well.

GRAHAM WALTON,
resumed the stand and testified further as follows:

CROSS-EXAMINATION (Cont'd.)

BY MR. DAVIS:

Q. Dr. Walton, in describing the incidents that you had discovered in your research where disease due to drinking water had occurred, you mentioned Minneapolis in 1935, Milwaukee in 1920, and the Ohio River occurrence, I didn't catch the date of?

A. I think you were mistaken in Milwaukee. 1936.

Q. Fine.

A. The Ohio River was, I believe, 1930 or '31.

Q. Now, the only thing I wish to ask about now is this. As I understood Mr. Kurylo's question, he asked you if this was caused by something in treated water which water had met the Government standards at that time. Now, your reply to him was that in each instance it had occurred where there was some failure such as insufficient chlorination, and so forth. Now, do I misunderstand you or what is the exact situation?

A. The situation, as far as I know it, that these waters conformed with the bacteriological standards--

Q. Right.

A. --as far as available knowledge was concerned.

Q. Yes.

A. Reasonable evidence indicated that.

Q. Right.

A. In view of my current knowledge, I would say certainly that Minneapolis did not provide adequate chlorination.

Q. Correct.

MR. DAVIS: There was one other question, Mr. Chairman, that I started on on cross-examination that I could not--did not have sufficient information upon which to complete it. Would you like me to go into that now and then be all done with my cross-examination?

CHAIRMAN WILSON: Well, I think so, before the Government starts on redirect.

MR. DAVIS: All right.

Q. (By Mr. Davis.) Now, these tests that were conducted by Mr. Streeter, Dr. Streeter, in 1923-'24, you testified this morning that he used the Phelps Index, is that correct?

A. Correct.

Q. Your studies at Omaha in '54 to '58 used the more probable number with reference to this coliform problem, is that true?

A. Most probable number, correct.

Q. Do you have sufficient information upon which to base a statement concerning the Exhibit 4, the October '52 report, as to whether the coliform counts reported there used the more probable number or the Phelps Index?

A. I am not particularly familiar with that report.

Q. If it says more probable number in the report--

A. If it--it would indicate that it was based on the most probable number.

Q. Yes. The capital letters MPN?

A. This is the abbreviation usually used.

Q. Right. Is there an arithmetical relationship between these two? For example, if the more probable number system had been used by Dr. Streeter in 1923 rather than the Phelps Index, what would have been the end result as far as the 5,000 figure is concerned?

A. Based on single tube data it would have been approximately double.

Q. Or as high as two and a third times?

A. I think for good bacteriological data, free of what we frequently call skips, which should be the case if the data is good, the ratio is around 2.3 to 1 for single tube data only.

Q. So that his recommendations as to the minimum allowable pollution level in untreated water if translated to present day methods instead of being 5,000 would have been 11,500?

A. Approximately, yes.

Q. Now, similarly the figure which has been used previously and is in evidence as to the average monthly coliform count at the Omaha water intake is 32,000. Assuming that those tests had been made using the Phelps Index, such as was used in setting up this 5,000 standard, what would that 32,000 have been?

A. I can not say exactly because this was a five-tube series, I believe. That is, there were five tubes planted in each of a series of decimal dilutions, the ratio 2.3 to 1 no longer holds.

Q. Well, what were used during your tests?

A. MPN values.

Q. What?

A. Most probable numbers.

Q. Most probable number. Would it be fair to say that if the Phelps Index had been used rather than the more probable number in establishing the average monthly average of 32,000 in 1952 at Omaha that it would have been reduced to 16,000?

A. No, I don't believe it would have.

Q. I see.

A. It would--

Q. However, it is safe for us to assume that when speaking of the recommended pollutional level in accordance with Dr. Streeter's studies that when the more probable number system is used in coliform count we should say 11,500 rather than 5,000?

MR. EDELMAN: I object to that, Mr. Chairman. What you are doing is you are basing an assumption that the present water quality objective of 5,000 MPN per hundred milliliters is based on the Phelps Index and on its face it is not, Mr. Davis. What you are trying to do is say that if you use the Phelps Index of five thousand you would get an MPN of approximately twelve or thirteen thousand. Well, that is not what the standard is based on.

CHAIRMAN WILSON: Is the Government interposing an objection?

MR. EDELMAN: Yes, we are, Your Honor.

CHAIRMAN WILSON: Well, if the witness can answer the question, he may answer, subject to the objection.

MR. DAVIS: I withdraw the question, Mr. Chairman.

I have no further cross-examination.

REDIRECT EXAMINATION

BY MR. EDELMAN:

Q. Dr. Walton, in the cross-examination--

CHAIRMAN WILSON: Are you through now?

MR. DAVIS: Yes, I am.

CHAIRMAN WILSON: O. K., go ahead.

Q. (By Mr. Edelman.) Dr. Walton, in the cross-examination portions of papers published by you or delivered by you were read and it appears that only portions of the material was read. I direct your attention to page 1288 of your paper delivered on May 7, 1956, as published in the Journal of American Water Works Association and remind you that counsel for Sioux City read the first sentence of your conclusion indicating that USPHS standards can be met by plants with heavily loaded waters. I would like you to read the sentence preceding that which begins on page 1287: "Throughout this study the coliform bacteria have been used as a criteria for the biological safety of water. Treatment for the removal of coliform bacteria may not be adequate for the destruction of all pathogenic organisms."

Q. And the part that was read earlier immediately followed that?

A. "Data have been presented showing that adequately designed and well-operated water treatment plants can treat raw waters heavily laden with coliform organisms to produce effluents conforming to the bacteriological requirements of the U. S. Public Health Service drinking water standards."

Q. That sentence in your article, as I understand it, is to be interpreted in light of the two immediately preceding sentences?

A. Correct.

Q. Now I call your attention to page 9 of the progress report of your paper delivered in 1958 and call your attention to the final paragraph on the left-hand side of the page. Earlier this morning there was read into the record the first two sentences of that paragraph. I would like you to read the language immediately following those sentences beginning with the qualifying word "however", or, if you please, read the sentence preceding that which was the last sentence that was read into the record this morning.

A. Starting with "if new"? "If new raw bacterial quality objectives are to be based on the capacity or treatment processes to remove coliform bacteria, the present recommended permissible loading may be increased many fold."

Q That was the end of the quotation that was made this morning?

A. I believe that is correct. "However, the utilization of raw waters heavily contaminated with sewage may create problems other than the removal of bacteria. The psychological reaction of the public against obtaining their drinking water from dirty water would be a major obstacle. The problem of taste and odor, which is one of major concern to most water plants, should be considered. Although bacteria are readily removed by water treatment processes, our knowledge of the fate of other pathogenic organisms is quite limited. It should be recognized that the production of a safe and desirable drinking water is most economically and easily accomplished when the plant processes a good grade raw material." Is that as far as you want?

Q. Dr. Walton, you are familiar with the writings of Streeter, who was mentioned by counsel for Sioux City this morning, are you not?

A. I have studied them quite extensively.

Q. You are aware of the article published by the Ohio River Valley Water Sanitation Commission?

A. I have read that paper.

Q. Streeter's article?

A. Yes.

Q. In 1951?

A. Yes.

Q. This was published in 1951. I would call your attention to page 19 of the report and ask you whether you are aware of the following recommendation made by Streeter which I shall now read: "It therefore is recommended that pollution control measures along the Ohio River and in its tributaries be aimed to meet an ultimate bacterial quality objective such that the monthly arithmetical average most probable number of coliform bacteria in the river at all water supply intakes will not exceed five thousand per one hundred milliliters in any month nor will exceed this figure in more than twenty percent of the samples of raw water examined during any month nor will exceed twenty thousand per one hundred milliliters or more than five percent of such samples." Is that substantially the recommended raw water quality objective of the Public Health Service today, Dr. Walton?

MR. DAVIS: That question is objected to for the reason that it calls for hearsay. I point out to the Chairman that the articles I referred to were written by the witness on the stand. Also for the reason that it is irrelevant and immaterial to the issues before this Board. There has been no showing that the conditions in the Ohio River are the same as in the Missouri; in fact they aren't. My objection goes to the competency, relevancy and materiality.

CHAIRMAN WILSON: The objection is overruled on that ground and the evidence will be received subject to the objection if the witness says that he can answer it from his own professional studies.

A. What was the question again, if I may?

Q. (By Mr. Edelman.) My question was whether this, the quotation I have given you, is substantially the raw water quality objective of the Public Health Service today.

MR. DAVIS: Further objection that is not the best evidence.

MR. EDELMAN: That is what?

MR. DAVIS: Not the best evidence.

CHAIRMAN WILSON: Same ruling.

A. I believe I would prefer to delay that question for answer by one of the other engineers.

MR. EDELMAN: I will withdraw the question at this time.

Q. (By Mr. Edelman.) May I ask you, does that quotation indicate that Streeter has accepted the most probable number count instead of the Phelps Index as the measure of raw water quality?

A. I believe that is true.

Q. In reading a table of situations where water-borne disease was traceable to a public water system, I believe you had a number of other incidents that you didn't complete reading?

A. I think I mentioned Detroit. Did I mention Seymour?

Q. Not to my recollection.

A. Seymour, Indiana, 1940, gastroenteritis 2,250 cases. And Gladstone, Alabama, 1941, 10,000 cases of gastroenteritis or dysentery.

Q. Are there any later indications of such incidents in that table?

A. I see nothing associated with breakdown or failure of a water treatment process or the personnel.

Q. When you indicated that some of these were attributable to inadequate chlorination, is that consistent with a breakdown of chlorinating equipment?

A. It could be.

Q. During the course of your cross-examination counsel referred to table 8 of your January 1958 report. You indicated that in a number of the months listed by you the plants failed to produce an acceptable effluent because of deficiencies in operation.

A. They failed to produce what I would consider an acceptable plant effluent, because of either inadequate facilities or deficiencies in operation.

Q. Could that be attributed to a failure of machinery or men?

A. Yes.

Q. Now, Dr. Walton, there is nothing in this paper which indicates whether or not in fact the final effluent of any of these plants met the Public Health Service drinking water standards?

A. That is correct.

MR. DAVIS: May I hear the question, ma'am? I didn't get it.

MR. EDELMAN: The question was, Dr. Walton--

MR. DAVIS: I will take it from her.

MR. EDELMAN: Oh, you want her to read it?

(Question read.)

CHAIRMAN WILSON: Is there an objection pending?

MR. DAVIS: No, sir. I just didn't hear the question.

Q. (By Mr. Edelman.) As I understand your earlier testimony, Dr. Walton, under the Public Health Service drinking water standards a certain number of coliform bacteria in the plant effluent is acceptable, is that correct?

A. A certain percent of positive tubes in all samples examined during the month from representative locations in a distribution system is permissible.

Q. So that even though a water treatment plant meets the Public Health Service drinking water standards, bacteriological examination of its effluent may indicate the presence of coliform bacteria in the finished product?

A. Yes.

Q. Have there been any developments in water plant operation for the killing or inactivation of coliform bacteria other than the development of chlorination, Dr. Walton?

A. Practically all plants are relying almost one hundred percent on chlorination.

Q. In other words, chlorination is the major and in many cases the only defense against contamination of a public water distribution system?

A. It is the major defense against bacteria.

Q. I believe you indicated earlier that in the event of any failure or breakdown in the chlorination equipment of a plant which took surface water that there would be a likelihood of contamination entering the distribution system?

A. Yes.

Q. Now, Dr. Walton, we have been talking about the most probable number. As I understand the procedure, this is based on samples taken from the effluent of the water treatment plant?

A. My study, you mean?

Q. No, the technique of bacteriological examination of effluent?

A. Is based on examination of samples taken from representative points in the distribution system.

Q. How long does the bacteriological examination of these samples take in order that you may reach a confirmed test on the presence or absence of coliform?

A. Minimum time is 48 hours by the usual procedures, maximum 96.

Q. In other words, this test helps the water plant operators know what went through their distribution system?

A. Correct.

Q. It in itself is no assurance that what is going through at the time that test is confirmed corresponds with the bacteriological finding of a sample taken between 24 and 48 hours ago?

A. Correct.

Q. You also indicated earlier that there have been advances in water treatment the last 20 or 30 years. As I understood you to say, these advances consisted almost entirely of more effective chlorination procedures. Would you consider that these chlorination procedures were required because of the continual degradation of the quality of the raw water that these plants are using?

A. I think this is a reasonable assumption.

CHAIRMAN WILSON: Just a minute.

Let the record show that Mr. Poole is present.

Q. (By Mr. Edelman.) In other words, the water treatment operator is something like a man who lives along the river that is going to flood stage. The man who lives along the river continues to build banks while the river continues to rise and if the river gets higher the bank gets higher and some day sooner or later the river is going to go over the top of the bank or through it. The water plant operator stands behind his filtration equipment. As the pollution gets worse, he increases his chlorination and is faced with the possibility that some day, through the breakdown either of equipment or human error, that contamination that is outside the city will break through. Is that a fair analogy of the situation?

A. I think it probably is.

Q. You indicated, turning to these tables in your January 1958 report, that various plants had coliform in their effluent. I direct your attention again to table 8 where you indicated that plants with a monthly arithmetical average MPN a hundred milliliters in the range zero to forty-nine hundred had coliform in their effluent. I direct your attention to the plants in the fifty thousand to ninety-nine thousand MPN range, which you indicate also had coliform in their effluent. Would you consider that the presence of coliform in the effluent of a plant in the fifty to ninety-nine thousand range presented a greater possibility of contamination with pathogenic organism than a plant that had similar coliform and was in the zero to forty-nine hundred range, assuming of course in both cases that the coliform count is due to defective operation or a breakdown of men or machines?

MR. DAVIS: Oh, well--

MR. EDELMAN: That is what he testified to was the basis for the presence of the coliform.

MR. DAVIS: I object to that question as improper in form.

CHAIRMAN WILSON: Objection overruled. Take the testimony subject to the objection, if the witness states that he is competent to answer.

A. I don't believe I am competent to answer that question.

Q. (By Mr. Edelman.) Let me rephrase the question. If you have a plant, Mr. Walton, that takes its water from a surface supply which has a monthly arithmetical average most probable number per one hundred milliliters of fifty thousand to ninety-nine thousand, in the event of a breakdown in the operations of the plant so that an appreciable number of bacteria and I understand associated pathogenic organisms entered the distribution system, would there be a possibility of a water-borne disease in the consumers of that water?

A. I believe so.

Q. If a similar incident happened with a plant in the zero to forty-nine hundred range of a raw water supply, would the possibility of infection be less, greater or the same?

A. It should be less because the potential possibility of pathogenic organisms in the raw water is less.

Q. In other words, the greater the coliform count the greater the hazard that is presented to the water plant?

A. This is my opinion.

Q. Assuming that the Omaha water plant were able to obtain a better quality of raw water, that is less organic pollution and less bacteria contamination, do you think that plant will have a higher safety factor, lower safety factor, or the same?

A. It should have a greater safety factor. How was the question again? Let me get this.

Q. Whether the safety factor would be higher, lower, or the same if the bacteria contamination and the organic pollution at the raw water intake were reduced?

A. The lower the bacterial contamination, organic contamination, the greater the safety factor would be.

Q. Do you consider that a water plant with an MPN per hundred milliliters of one million or more coliform has a desirable source of water supply?

A. No.

Q. Is there a difference between a tolerable source and a desirable source?

A. I would say yes.

Q. There is a difference that if you have no alternative you have got to drink the best you can get?

A. This is true.

Q. But if you can get better you try to get it?

A. Correct.

Q. Dr. Walton, on the basis of your testimony would you consider that the raw water supply at the Florence pumping station evidences bacterial and organic pollution?

A. It certainly evidences bacterial pollution. I have not studied the organic. I would expect some organic contamination along with the bacterial loading, however.

Q. You would not say that a fair interpretation of your papers would justify the conclusion that that water supply is not polluted?

A. Certainly not.

Q. In other words, you consider that the water supply is polluted?

A. The water supply is polluted.

MR. EDELMAN: That is all, Mr. Chairman.

CHAIRMAN WILSON: Any further questions?

RECROSS-EXAMINATION

BY MR. DAVIS:

Q. Dr. Walton, you were just asked if such a source of water supply from the river was not desirable and you said that is true. Can you tell the Board how many major cities using the Missouri River as a source of their domestic water have a desirable water supply within that limitation?

A. I can not, because there are many Missouri River cities that I have not studied.

Q. Can you think of any major city upon the Missouri that has a desirable water supply, within this definition he has given of complete lack of pollution?

MR. EDELMAN: Are you limiting your question to surface water or all water supply?

MR. DAVIS: River water.

A. You are speaking of-- I know of no city which I would consider having a desirable supply among those I studied on the Missouri River.

Q. (By Mr. Davis.) What other rivers have you studied with reference to this?

A. Well, I had 54 plants scattered throughout the United States. There were three or four of them on the Missouri, there were several on the Mississippi, several on Ohio, many rivers. I can't name them all.

Q. Well, of those 54 plants how many of them had a desirable source of water that used river water within the definition he has given you of complete lack of pollution?

A. In general none of them because they were selected for the purpose of studying plants with high bacterial loading in the raw water.

Q. Are you familiar with the major cities on the Ohio River that use the river water, if any of them do, that would have the temerity to do so, as their source of water supply?

A. Most of the cities along the Ohio River use river water as their source.

Q. Would you know whether any of those major cities have a desirable water supply within the definition that Mr. Edelman gave you of lack of pollutional load in the river?

A. The coliform densities in the raw water of most of those cities is below that on the Missouri River water.

Q. But still within his definition of desirability, meaning complete absence of pollutional load, they do not have desirable sources, they would not be desirable sources, would they?

MR. EDELMAN: I did not consider that I defined desirable to mean the complete absence of pollution. I merely asked whether the witness considered the pollution in the range of one million coliform MPN to be desirable water and he said no.

CHAIRMAN WILSON: Are you interposing an objection?

MR. EDELMAN: I am interposing an objection on the grounds that the question is improper, that it assumes facts which are not in the record, and attributes to me statements which were not made.

MR. DAVIS: Well, I will withdraw the question if counsel says that one million coliform is what he means by not desirable. I will accept that.

MR. EDELMAN: I suggest, Mr. Davis, that that is what I said.

MR. DAVIS: Well, on that I think we can agree.

CHAIRMAN WILSON: Is the question withdrawn?

MR. DAVIS: Yes, sir.

Q. (By Mr. Davis.) Doctor, you were interrogated just now by counsel concerning what you meant by the water being acceptable and the tables attached to some of your works, to include table 8, in the talk you made in 1958, and I believe you said that the water effluent at the plant was acceptable to you in a number of instances about which you testified this morning when I examined you, is that correct?

A. I think--I am not sure I understand your question.

Q. Well, what differentiation were you making this afternoon, then? I will put it that way.

A. I still am not quite sure that I understand what your question is.

Q. You were asked by counsel to differentiate between your statements on acceptability of the water this morning and the actual acceptability under public health standards, as I understood his question.

A. My interpretation of acceptability in this study, in this table--

Q. Yes.

A. --is that these 15 plant months in which a percent of tubes of plant effluent equalled or exceeded 2 percent of all portions examined--this is plant effluent only--those 15 plant months I considered unacceptable from my point of view. This is not a standard.

Q. Right.

A Inasmuch as I did not examine data for samples throughout the distribution system--

Q. Correct.

A. --and did not have representative samples, I can not make any kind of a statement regarding Public Health Service standards regarding this study.

Q. This study. Public Health Service standards for the drinking water are ten percent rather than two and that is in the water system itself, is it not?

A. This is correct.

Q. Now, conceivably if the coliform bacteria count were reduced to where no percentage of the test, as in the case of the half million to nine hundred-ninety thousand, no percentage during those months was shown in the effluent, it still later on in the distribution system could show enough of a count to be unacceptable according to public health standards, isn't that correct?

A. If none were in the plant effluent?

Q. No, I am saying there could be none in the plant effluent--

A. Yes.

Q. --which would mean that the coliform attributable to the source, the raw water, had been removed, would it not?

A. It would indicate this.

Q. All right. Now, later on tests made within the distribution system of the city itself might show a count, is that correct?

A. Right.

Q. And what would be the possible sources of the coliform bacteria that would turn up in that count?

MR. EDELMAN: Isn't that just speculation, Mr. Chairman? The Government enters an objection to that question. I think he is asking the witness to speculate as to what might happen in an unnamed city under unknown circumstances at an unspecified time.

CHAIRMAN WILSON: The objection is overruled. We will take the answer subject to the objection if the witness testifies that he is competent to answer.

A. This could be from any source.

Q. (By Mr. Davis.) For example--

A. Omaha, for example, treats, I don't know exactly, fifty, eighty million gallons of water a day? We take one plant tap or one plant effluent sample. Five hundred milliliters at most out of sixty million gallons. If there are coliform going through the plant, what is your chance of picking it up in that sample.

Q. Right. Now, after the water leaves the plant is it possible for coliform organisms to be introduced into the distribution system?

A. This could happen.

Q. And the common sources would be what?

A. Common sources would be defective plumbing.

Q. That is, siphonage in households and places?

A. Not many households that I expect to find such, but it could occur in a household.

Q. Or in businesses and hotels?

A. Possible.

Q. What other sources?

A. Industries, contamination resulting from poor construction procedures or maintenance or repair procedures.

Q. All right. Does Omaha have a completely closed system?

A. I believe not, but I have not studied their distribution system.

Q. Assuming for the purpose of this question that it is not and that reservoirs are used or stand pipes that are open, coliform organisms can be introduced into the system there, can they not?

A. Possible by air or bird borne.

Q. Bird droppings?

A. Yes.

Q. Or animals, if they have open reservoirs, right?

A. Yes.

Q. The point I am trying to make, Dr. Walton, with which I hope you will agree, is that after the water leaves the water purification plant it can receive coliform organisms?

A. This is possible.

Q. Which would make the water in the finished product where it is tested by the Public Health Service unacceptable?

A. This is possible.

MR. DAVIS: That is all, Mr. Chairman.

CHAIRMAN WILSON: Any further questions by counsel?

Members of the Board?

That is all, Doctor.

(Witness excused.)

CHAIRMAN WILSON: Now I will ask for a report from the Secretary on these witnesses who asked for an opportunity to be heard at this time.

SECRETARY AYERS: The Government has four expert witnesses, one of whom would like to be heard this afternoon, Dr. Ryckman, and then the Government also has nine lay witnesses--what? I didn't understand you.

MR. STEIN: Aren't there two Corps men, Corps of Engineer men too?

SECRETARY AYERS: Yes, I am sorry.

MR. STEIN: They are Government witnesses.

SECRETARY AYERS: That would add your expert witnesses to six and seven. The Mayor of Vermillion, South Dakota, is here representing South Dakota, and he would like to be heard this afternoon. The question has come up with some of the Nebraska witnesses whether it would go on until Thursday and I can't have any estimation of how long it is going to take the Government to put in its case.

CHAIRMAN WILSON: Well, I think as far as the Government is concerned I will have to leave that between them and their counsel. What I was inquiring about this noon was on the basis of information that had been given to me that the representatives of some of the state agencies were here today and desired to be heard because they couldn't very well stay over.

SECRETARY AYERS: Mr. Filipi would like--

CHAIRMAN WILSON: Are there any in that predicament?

SECRETARY AYERS: Yes. Mr. Filipi is here and would like to be heard today or to be excused until Thursday. Am I correct?

MR. FILIPI: Yes, if it please the Board, I can be back on Thursday and give my testimony at that time.

CHAIRMAN WILSON: Well, all I can say is that it seems very probable that we should be here Thursday, but there is no positive way to know that. This doesn't look like a lawsuit that is going to be settled.

Well, will your testimony take very long, Mr. Filipi?

MR. FILIPI: My presentation will not.

MR. DAVIS: His testimony might.

CHAIRMAN WILSON: I think, then, that--well, now, Mr. Secretary, are there any others who are in urgent need of being heard this afternoon and want to get on?

SECRETARY AYERS: Yes. Dr. Ryckman of St. Louis.

CHAIRMAN WILSON: Is he here?

SECRETARY AYERS: He was.

DR. RYCKMAN: Yes, I am. Mr. Hartung is in the same position.

CHAIRMAN WILSON: Does he also wish to be heard?

MR. HARTUNG: Yes, if Your Honor please. If you please, sir.

CHAIRMAN WILSON: Are you gentlemen in a situation where it would be a great inconvenience to stay over until tomorrow?

DR. RYCKMAN: Yes, sir.

CHAIRMAN WILSON: How long do you think your presentation will take?

MR. EDELMAN: Mr. Chairman--

DR. RYCKMAN: About 15 minutes.

CHAIRMAN WILSON: And how about the other gentleman with you?

MR. HARTUNG: And I can make mine in 15 minutes too, sir.

CHAIRMAN WILSON: Then I think we will take these three witnesses, if counsel have no objection. As I understood, you do not.

MR. EDELMAN: We have no objection, Mr. Chairman.

MR. PATTERSON: I will only require five minutes and I would like to get my job done and go back to work.

CHAIRMAN WILSON: Where is your home?

MR. PATTERSON: Vermillion, South Dakota.

CHAIRMAN WILSON: Well, yes, I understood you were among those who were listed.

MR. PATTERSON: My presentation will only take five minutes. I doubt if there is any rebuttal.

CHAIRMAN WILSON: Very well.

SECRETARY AYERS: I will get the clerk.

CHAIRMAN WILSON: There are no counsel here representing these state agencies, I believe?

(Off the record.)

ROBERT F. PATTERSON, called as a witness on behalf of the City of Vermillion, South Dakota, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY CHAIRMAN WILSON:

Q. As long as you are not represented by counsel, Mr. Patterson, will you give your full name, residence and position and whom you represent?

A. My name is Robert F. Patterson. I am the mayor of the City of Vermillion, South Dakota. I am appearing on behalf of the governing body of the City of Vermillion. I would like to make a brief statement.

Q. You may proceed.

A. Vermillion is a town of 5,500 people, not on the Missouri River. Our municipality is located on the Vermillion River.

Q. Is that a tributary of the Missouri?

A. It is a tributary of the Missouri River. We do not dump sewage directly into the Missouri River, but into the Vermillion River some distance upstream from the mouth of the Vermillion River where it empties into the Missouri. We have had considerable contact with the State Board of Health of the State of South Dakota since 1955. I think the record will show that the City of Vermillion has exhibited a willingness to cooperate in eventually altering our method of sewage disposal for our municipality. In 1957 we retained consulting engineers and got a preliminary report on the matter in order to get some idea of what this proposition was going to cost us. We then provided from our own municipal funds an amount of approximately $400,000 to separate our storm and sanitary system. The first part of that was completed last summer; the contract for the second part has been let and will be completed this summer. Now, that is a lot of money in a community like mine.

We also provided in the 1959 budget an item for the possible acquisition of land for the site of some sort of sewage disposal system. Our relationship with the Department of Health and its officials I think has been amicable, although I don't think they have been entirely happy with the total results in spite of the progress that we have made. We have objected to two things. One, we have never been shown in the City of Vermillion that we are contributing anything to the pollution of the Missouri River.

I think we might be a little more impressed with the urgency of our problem if we were given some tangible proof that we are doing that. In the second place, we have resisted the idea that we had to write down a commitment as to a date when we would have these things finished. We are going to have some difficulty raising the funds for any kind of a project in Vermillion. I am not under any illusions that a bond issue for this or any other purpose could carry now in the City of Vermillion in view of the total weight of the tax burden in my community.

In addition, with a growing city we have some other problems. Sewage disposal isn't the only problem we have in the City of Vermillion. And we think some of these other problems are just as serious for the people of the City of Vermillion as the remote possibility that we are polluting the Missouri River.

I would like to say further that as soon as we see a lot more action on the part of great centers of population along the Missouri River, who it is alleged are polluting the Missouri River, as soon as we see a little more action there then we will be a little bit more impressed with the urgency of action in a small community like mine that isn't even dumping in the Missouri River.

I would like to say in conclusion that we are convinced in Vermillion that the time is coming when we will have to change our sewage system. We think in the over-all picture it is desirable. We think we have indicated that we are trying to move in that direction. We just like not to be beaten over the head by somebody demanding that we set a date when that guarantee will be done and I think the record will bear out the fact that we are moving in that direction.

Thank you very much.

CHAIRMAN WILSON: Any questions, Counsel?

MR. STEIN: No questions.

MR. DAVIS: None from the city, except I would like to take the legal way of saying Amen. We adopt his testimony on behalf of Sioux City.

CHAIRMAN WILSON: What?

MR. DAVIS: Take the legal way of saying Amen to what he said and we adopt his sentiments in his testimony.

CHAIRMAN WILSON: That may appear in the record.

Just a moment. Any members of the Board any questions?

Q. (By Chairman Wilson.) Where does the Vermillion River empty into the Missouri, above or below Sioux City?

A. Oh, it is above Sioux City, 40 miles, 35, 40 miles.

CHAIRMAN WILSON: No further questions.

Q. (By Mr. Samson.) How is your sewage disposed of now?

A. We are dumping into the Vermillion River, which is a tributary.

Q. (By Chairman Wilson.) How far is that outlet above the Missouri?

A. It is about three or four miles.

Q. Three or four miles?

A. Yes.

Q. (By Mr. Samson.) How many sewer outlets do you have into the river?

A. Two.

Q. And those outlets are dumping the raw sewage into the river?

A. That is my understanding.

MR. SAMSON: Thank you very much.

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Patterson.

(Witness excused.)

CHAIRMAN WILSON: Now, Mr. Secretary, who is the next witness? Call him, please.

MR. EDELMAN: Dr. Ryckman.

CHAIRMAN WILSON: Doctor, in view of the fact you are not represented by counsel, will you state your full name or were you going to examine him, Mr. Edelman?

MR. EDELMAN: Mr. Chairman, it is a misunderstanding. Dr. Ryckman is a Government witness.

CHAIRMAN WILSON: Oh, he is a Government witness?

MR. EDELMAN: Yes, sir.

CHAIRMAN WILSON: Oh, I misunderstood. Just a minute. Are there any other witnesses from state or local agencies that were on this list?

All right. I understood that we were to take care of them first. You may proceed then.

D. W. RYCKMAN,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Dr. Ryckman, I remind you you were sworn earlier and the testimony you are about to give is still subject to that oath. Will you identify yourself to the reporter and give her your address, please?

A. I am D. W. Ryckman, 1000 Joanna, St. Louis 22, Missouri. I am a Sanitary Engineer, a Director at the Sanitary Engineering Research Laboratories, graduate program, Washington University, St. Louis, Missouri.

Q. Dr. Ryckman, could you tell us your professional experience in the field of sanitary engineering?

A. Yes, sir. At the present time I am the Director of the Sanitary Engineering Research Laboratories. I have degrees in civil engineering from Rensselaer Polytechnic Institute, a Master of Science from Michigan State University, and Doctor of Science--

CHAIRMAN WILSON: Doctor, will you just speak up so that all the members of the Board can hear. Just talk to the farthest member of the Board.

A. A Doctor of Science in Sanitary Engineering from MIT. And I have had experience in consulting and sanitary engineering as well as educational, serving as a professor in Sanitary Engineering.

Q. (By Chairman Wilson.) To what agency is this laboratory that you speak of attached?

A. Washington University, a non-profit institution.

Q. (By Mr. Edelman.) Where is it located?

A. St. Louis, Missouri.

Q. Are you a registered engineer?

A. Yes, sir.

Q. Of what professional and honorary societies are you a member, Doctor?

A. Sigma Xi, Chi Epsilon, Tau Beta Pi, American Society of Civil Engineers, American Water Works Association, New England Sewage Industrial Wastes Association, American Society of Engineering Education, and Missouri Water and Sewage Association.

Q. You have also published a number of papers in this field, have you not, of water pollution?

A. Yes, sir.

Q. Will you give us the state in which you are registered as an engineer, Doctor?

A. Yes, Michigan.

Q. Did you make a study and evaluation of organic materials contained in waste discharges from the Sioux City area and their effect on the Missouri River within the past year?

A. Yes, sir.

Q. Can you tell us what the purpose of this study was?

A. The purpose of this study was to ascertain whether Sioux City wastes contained materials of odor significance and in what quantity, if it did contain materials of odor significance in what quantity did they exist.

MR. DAVIS: Doctor.

A. Yes.

MR. DAVIS: Odor, o-d-o-r?

A. Odorous, yes, o-d-o-r-o-u-s.

Q. (By Mr. Edelman.) By odorous, do you mean--

CHAIRMAN WILSON: Just a minute. Doctor, the members at the far end have admonished me to ask you again to please talk to them and not counsel. You can listen to his questions, but please try to throw your voice so that not only members of the Board can hear you but members of the press over there in the jury box, who are interested in hearing what you say.

A. All right, sir.

Q. (By Mr. Edelman.) I will repeat my question. When you said odor-causing material do you include taste and odor?

A. Yes, sir.

Q. Will you tell us the principal types of data that were obtained by you for the purpose of this study?

A. There were two sources, we might categorize them in two sources. The one source was samples collected from the Sioux City wastes and the other source was samples collected from Yankton, from the Missouri River water at Yankton and at Omaha, Nebraska.

Q. Did you also take samples of the treated water at Yankton and Omaha for the purpose of this study?

A. Yes, sir.

Q. How long has monitoring been going on for this purpose in this reach of the river?

A. It has been going on continuously since the fall of 1957.

Q. Can you tell us just how this study proceeded, beginning with the collection of the samples?

A. Yes. On November 4, 1958, the U. S. Public Health Service personnel collected samples from various sources of wastes in the Sioux City area and prepared two composite samples, which were sent to the Washington University laboratories for analysis. One sample consisted of wastes from the Perry Creek, Virginia Street, and Court Street outlets. This sample composited according to flow was primarily from domestic sources. The other sample, containing primarily industrial wastes, was composited from the Floyd River at a point approximately 100 yards above its mouth. Organic material of taste and odor significance was recovered from these composite samples by extracting with chloroform. This chloroform soluble organics were fractionated into six groups.

Q. Did you compute the relationship of these groups to the total extract you made?

A. Yes, I did.

Q. Did you prepare a visual chart based on your findings as to their relationship?

A. Yes.

Q. Do you have it?

MR. EDELMAN: The Government would like to have this chart entitled "Characteristics Sioux City Wastes" marked in evidence as Government Exhibit 14.

(Government's Exhibit No. 14
marked for identification.)

THE WITNESS: If the Chairman will allow me, I would like to take the opportunity of expressing credit where credit is due to my colleagues and staff that helped in this investigation, Dr. Burbank of our staff, Professor Edgerly, who also worked diligently and hard these last few weeks, not only in investigation but in preparing the charts.

Q. (By Mr. Edelman.) Would you explain the significance of the figures on that chart to us, Doctor?

A. This chart shows the characteristics of Sioux City's wastes, with regards to the total chloroform soluble organics. This is not the total organic, but just the chloroform soluble organics.

CHAIRMAN WILSON: Just a minute before you proceed. Counsel, is this exhibit formally offered in evidence or is the witness just using it in connection with his own testimony?

MR. EDELMAN: Mr. Chairman, I established a basis for the exhibit and I offered it formally in evidence. The witness testified he prepared it and that it was based on the findings he made of his study of the material.

CHAIRMAN WILSON: Any objection?

MR. DAVIS: For the sake of the record, that it is immaterial and irrelevant.

CHAIRMAN WILSON: It will be received subject to the objection.

(Government's Exhibit No. 14
received in evidence.)

A. You see two columns here (indicating), one column listed "Domestic". This means it is under the heading here "Composite of outfall sewers from the domestic", listed those at Court Street sewer, Virginia Street sewer, and--let's see--the other one Perry Creek. Then we have the composite sample taken from the Floyd River which is listed under the industrial. Notice that the total chloroform soluble organics, which is the parameter for the taste and odor part of the organic, amount to twenty-seven milligrams per liter approximately in both the type wastes that we are looking at. The total pounds per day computed from that from figures from the engineers' report would mean that we would have 1,725 pounds coming from the domestic sources and 1,719 from the industrial sources, or a total of over 3,400 pounds per day being discharged to the Missouri River. Now, in further fractionation of these groups and the organic breakdown of this there are two things of significance. The neutrals and weak acid groups constitute approximately 80 percent of both the domestic and the industrial wastes. The other groups are of lesser significance. These groups, the neutral and weak acid groups, are known to constitute the predominant components which cause taste and odors in the chloroform soluble organics.

Q. (By Mr. Edelman.) Doctor, was a similar evaluation or an evaluation related to this made of chloroform soluble material found at the water plant intake of Yankton, South Dakota, and Omaha, Nebraska?

A. Yes, sir.

Q. Did you prepare a chart based on this analysis?

A. We did.

Q. Do you have that chart with you?

A. Yes, sir.

MR. EDELMAN: Mr. Chairman, I apologize for not marking the earlier one. We will mark this for identification at this time, Government Exhibit 15 for identification?

SECRETARY AYERS: That is right.

(Government's Exhibit No. 15 marked for identification.)

Q. (By Mr. Edelman.) Now, Dr. Ryckman, was this chart prepared on the basis of an evaluation of data obtained from the examination of chloroform soluble material found at the raw water intake of Yankton, South Dakota, and Omaha, Nebraska?

A. Yes, part of it was. The other part is based on the finished water.

Q. It is an accurate representation of the data in both instances, is it not?

A. Yes, sir.

MR. EDELMAN: Offer this in evidence as Government's Exhibit 15.

CHAIRMAN WILSON: Any objection?

MR. DAVIS: It is irrelevant and immaterial.

CHAIRMAN WILSON: It will be received subject to the objection.

(Government's Exhibit No. 15 received in evidence.)

A. We have here a chart showing the concentration of chloroform soluble organics in the raw water and the tap water at Yankton, South Dakota, and Omaha, Nebraska. Over here (indicating) is plotted the organic concentration in parts per billion. The significant thing here is that the raw water, which is indicated on the red scale here (indicating), has increased significantly between Yankton and Omaha. We have a little over twenty parts per billion at Yankton, we have over approximately thirty-five parts per billion at Nebraska. In the tap water you will note the same type of thing of just the chloroform soluble organics. At Yankton we have approximately twenty-five, at Omaha we have approximately forty-five.

Q. (By Mr. Edelman.) Dr. Ryckman, do you have any opinion as to the reason for the increase that you have indicated on this chart between Yankton and Omaha, in the raw water, that is?

A. Yes, I do. It is my opinion that it is caused by--

MR. DAVIS: Just a minute. You have answered the question. He just asked you if you had an opinion.

MR. EDELMAN: I will ask him now the question.

Q. (By Mr. Edelman.) What is your opinion?

MR. DAVIS: Now, that question is objected to, not only as irrelevant and immaterial, Mr. Chairman, but for the further reason that there has been no proper foundation laid here to show that this witness is qualified to answer the question.

CHAIRMAN WILSON: May we have that question, Miss Reporter?

(Record read.)

CHAIRMAN WILSON: Well, I think that question would probably require further foundation to establish the competency of the witness.

MR. EDELMAN: Mr. Chairman, the witness was qualified as an expert in the field of sanitary engineering, has studied the problem of taste and odor, written papers on them. He has studied this region of the Missouri, collected samples from Yankton, from Omaha, from Sioux City. He has composited these samples and analyzed them and I think that he is in a position to give an expert opinion on this. And if he isn't, I am sure I don't know of anyone else who is.

CHAIRMAN WILSON: Are you able to answer that question, Doctor, on the basis of your own observations and professional studies?

A. Yes, sir.

CHAIRMAN WILSON: You may answer. It will be received subject to the objection.

A. It is my opinion that this increase is due to wastes discharged at Sioux City.

Q. (By Mr. Edelman.) Turning to the lower portion of Government Exhibit 15, the bar line which is labeled Omaha is higher than the bar line which is labeled Yankton. Does this mean that the water in Yankton has less taste and odor than the water in Omaha?

A. We are talking about the odor potential here (indicating)?

Q. Yes, sir.

A. To point out the quality of odor, this (indicating) points out the quantity, this (indicating) points out the quality or odor potential of the chloroform soluble organics. This (indicating) would illustrate, this chart illustrates, that the material found at Omaha has appr ximately twice the odor potential as the material found at Yankton.

Q. It is twice as potent, in other words?

A. That is right.

Q. Doctor, did you prepare a chart listing these values upon which your exhibits are based? You prepared two charts?

A. Yes, sir.

Q. On which these exhibits are based? I show you two mimeographed sheets of paper marked 4 and 5 in the upper right-hand corner and ask you whether these are the charts you prepared?

A. Yes, sir.

MR. EDELMAN: I ask they be marked as Government's Exhibit 16 for identification.

SECRETARY AYERS: Both of them?

MR. EDELMAN: Both of them. And after they have been so marked I ask that they be received in evidence--I am sorry, make that 16 and 17.

SECRETARY AYERS: All right.

MR. EDELMAN: As Government's Exhibits 16 and 17.

(Government's Exhibits Nos. 16 and 17 marked for identification.)

SECRETARY AYERS: You haven't offered them, have you?

MR. EDELMAN: Yes, I will offer these.

CHAIRMAN WILSON: Is there any objection?

MR. DAVIS: Objected to as irrelevant and immaterial.

MR. EDELMAN: You say the objection is irrelevant or the objection is that they are?

MR. DAVIS: Object to them as being irrelevant and immaterial.

MR. EDELMAN: I am sorry. I misunderstood you.

CHAIRMAN WILSON: You are objecting to them that they are irrelevant and immaterial?

MR. DAVIS: And that they are incompetent, which I think encompasses the question of foundation.

CHAIRMAN WILSON: Well, as I understand it, these compilations are based on the witness's observations and studies?

MR. EDELMAN: Exactly, Your Honor.

CHAIRMAN WILSON: They will be received subject to the objection.

(Government's Exhibits Nos. 16 and 17 received in evidence.)

CHAIRMAN WILSON: Now I think we will take our first afternoon recess of ten minutes.

(RECESS)

CHAIRMAN WILSON: The hearing will be in order.

Proceed, Mr. Edelman.

Q. (By Mr. Edelman.) Dr. Ryckman, do you have samples of these chloroform soluble organic extracts taken from the raw water intake at Omaha which indicate the characteristic odor?

A. Yes, we have some samples.

Q. Do you have a sample taken from the raw water intake of the Omaha water plant?

A. Yes, I do.

MR. EDELMAN: May I have it?

I will ask this be marked Government Exhibit 18 for identification.

(Government's Exhibit No. 18
marked for identification.)

Q. (By Mr. Edelman.) Dr. Ryckman, referring to the contents of this small bottle, was this extracted from the water in accordance with the standard procedures used in your study of this material?

A. Yes, sir.

MR. EDELMAN: Offer this in evidence as Government Exhibit 18.

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial. My objection to competency, Mr. Chairman, going also, of course, to the lack of any foundation being laid.

CHAIRMAN WILSON: Received subject to the objection.

(Government's Exhibit No. 18
received in evidence.)

Q. (By Mr. Edelman.) I ask the witness to open the bottle and take a small smell of it and see if he can describe the odor.

A. It is an offensive odor that I wouldn't like in my drinking water.

Q. I ask you whether you have a similar sample taken from the tap water at Omaha?

A. Yes, sir.

MR. EDELMAN: I ask that this be marked Government Exhibit 19 for identification.

(Government's Exhibit No. 19
marked for identification.)

Q. (By Mr. Edelman.) Dr. Ryckman, I ask you whether the material in this bottle marked Government Exhibit No. 19 for identification was obtained as part of the study you described and whether it was extracted from tap water at Omaha, Nebraska, in accordance with the standard procedures used in your study?

A. Yes, sir.

MR. EDELMAN: I offer Government's Exhibit 19 in evidence.

MR. SAMSON: What is the date of that, Mr. Edelman?

MR. EDELMAN: 12-'58.

Q. (By Mr. Edelman.) Can you tell us the date when this was taken?

A. During December.

Q. (By Chairman Wilson.) What was that?

A. During December 1958.

MR. DAVIS: The same objection, Mr. Chairman, as last above heard.

CHAIRMAN WILSON: Same ruling.

(Government's Exhibit No. 19 received in evidence.)

Q. (By Mr. Edelman.) I ask the witness to smell the contents of that bottle and see if you can describe the odor.

A. This sample of extract from the tap water has an odor similar to the sample in the raw water, being offensive and strong.

Q. Now, Dr. Ryckman, as a result of your study and analysis of this material, do you have any conclusions that are based on your study?

A. Yes, I have a number--

Q. What are they?

MR. DAVIS: That is objected to as calling for the opinion and conclusion of the witness, irrelevant and immaterial, and not having anything to do with the matter in issue here, and also for the reason that the testimony is incompetent.

CHAIRMAN WILSON: May I have that question, please?

(Record read.)

CHAIRMAN WILSON: Well, I think I will sustain that objection. I think that counsel should be a little bit more specific in indicating the subject matter on which he desires to elicit an answer.

Q. (By Mr. Edelman.) Do you have any conclusions on the matter of the concentration of odor-producing materials in the Missouri River downstream from Sioux City?

A. Yes, sir. They were shown on the chart sometime before at the Omaha intake. The raw water that ran thirty-four parts per billion and the tap water forty-four parts per billion.

Q. Did you find that there was an increase in the concentration of odor-producing materials from water taken from the Missouri River downstream from Sioux City as compared with water taken from the Missouri River above Sioux City?

A. Yes, sir.

Q. Can you tell us what that increase was?

A. It amounted to approximately 76 percent in the tap water samples.

Q. How can a water treatment plant handle these chloroform soluble extracts, Dr. Ryckman?

A. At the present time this is a problem with the water works industry and they have not been able to solve it.

Q. Do you consider that the increase in this organic material that you have indicated exists below Sioux City constitutes a hazard to the quality of potable water at Omaha, Nebraska?

A. I do.

MR. DAVIS: I move to strike that answer or I ask that an objection be allowed to precede the answer, since I didn't have time to make it, the objection being that it is incompetent, irrelevant, immaterial, and no proper foundation has been laid to ask this conclusion of this witness, and for the further reason that it does ask for a conclusion.

CHAIRMAN WILSON: This is an expert witness. The answer may stand subject to the objection.

Q. (By Mr. Edelman.) Dr. Ryckman, would it be possible for a community which now discharges untreated sewage of the kind you have indicated earlier to do something which would result in a reduction in the amount of these organic odor and taste-producing substances that are discharged into the river?

A. Yes, it would.

Q. How could that be accomplished generally?

A. Through proper sewage treatment.

MR. EDELMAN: That is all.

CHAIRMAN WILSON: Are you all through now?

MR. EDELMAN: Yes, Mr. Chairman.

CHAIRMAN WILSON: You may proceed, Mr. Davis.

MR. DAVIS: I wonder if before I commence we could get Exhibit 14, the first chart, in front so I may refresh my memory.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Am I to infer, Dr. Ryckman, from your testimony that sewage wastes, both domestic and industrial, are the only contributing causes to odor and taste of water?

A. No, sir.

Q. What are other contributing factors?

A. Other organic compounds.

Q. From where might they come?

A. They might come from nature.

Q. And, for example, what might they be?

A. There are many, many types of organic compounds. I think the fact that taste and odors are generally caused by organic extracts would answer the question.

Q. Would you want to define what you mean by organic extracts?

A. Material removed from waters or other materials with some type of separation material procedure.

Q. Would runoff from farms which involve only soil being deposited in the Missouri River, for example, increase the soluble organics that you speak of or not?

A. It is possible.

Q. Would runoff from farms adjacent to the Missouri River and in its basin which included excrement or manure from all farm animals add to the amount of soluble organics about which you have testified and thus eventually contribute to the taste and odor?

A. They would be a factor for consideration.

Q. Do you know how many river miles there are between Sioux City, say at the Floyd River which you have used, and the water intake at Omaha, Nebraska, which is called the Florence plant?

A. I don't have the figure here. I have looked it up, though.

Q. Would 116 miles fit in with your recollection?

A. I think that is approximately right.

Q. Do you know the area in square miles which surrounds the Missouri River between Sioux City and Omaha where there is runoff from farms of all kinds into the Missouri River?

A. No, sir.

Q. Then I would take it that you did not take that factor into consideration in making this study?

A. It is my professional opinion it was not necessary.

Q. Do you know the extent to which land adjacent to the Missouri River and in this particular part of the basin is used for the feeding of livestock of all kinds?

A. Not in detail.

Q. Then I can assume that you did not in making your study make any breakdown as to those particular types of wastes or test any of those kinds of wastes, that is from farm runoff, is that correct?

A. That is right.

Q. Now, you did make a study of the characteristics of the wastes from Sioux City, both domestic sewage and industrial, as shown on your Exhibit 14 from the different sewers, is that correct?

A. Yes, sir.

Q. Your answer is yes?

A. Yes. You see them here (indicating) on the chart.

Q. Yes. Now, did you make a similar study of the characteristics of the wastes, both domestic and industrial, that are discharged into the Missouri River from the Sioux City air base operated by the United States Air Force?

A. No, sir.

Q. Do you know where those are discharged in the river?

A. No, sir.

Q. Do you know how many thousands of people are involved in that discharge of wastes?

A. That is not my responsibility.

Q. So that in making your study--excuse me. Do you know that this air base sewer discharges untreated sewage into the river some ten miles below Sioux City?

A. I will take your word for it.

Q. All right. Now, assuming this to be true, would that affect the contents of the Missouri River, with particular reference to these odor-producing soluble organics that you testified?

A. Could very well.

Q. Did you make any study of the characteristics of the wastes discharged by the City of South Sioux City, Nebraska, into the Missouri River immediately below Sioux City?

A. Not a separate study.

Q. Did you make any study or breakdown or any analysis of the characteristics of the wastes discharged by the City of Dakota City, Nebraska, into the Missouri River below Sioux City?

A. Not a separate study.

Q. Right. Did you make any study, such as you did for Sioux City and Yankton, this breakdown, of the characteristics of wastes discharged directly into the Missouri River by the City of Blair, Nebraska?

A. Not a separate study.

Q. Did you make any separate study of the wastes, both from domestic sewage and industrial sewage, discharged into the Boyer River by the City of Denison, Iowa, and in turn into the Missouri River below Sioux City, in fact just above the Florence water intake?

A. Not a separate study.

Q. Did you take those factors into account in arriving at your conclusion?

A. Yes.

Q. All right, sir. How much industrial waste is discharged into the Boyer River from the sewage plant or, rather, from the City of Denison?

A. I did not have to know how much is discharged.

Q. Do you know how much domestic sewage is discharged?

A. No, sir.

Q. Could those discharges that I have listed, if they do occur, affect the end results that you got at Omaha?

A. No, sir.

Q. Why not?

A. Because they are shown there with your extracts from the Missouri River at Omaha, they were discharged and we extracted water from Omaha.

Q. Right.

A. So they are shown.

Q. But when you made your extraction at Omaha, isn't that bound to include soluble organics that originated in Denison, in Blair, at the air base, at South Sioux City as well as Sioux City?

A. Absolutely.

Q. So that you can't say here today that what you extracted came solely and only from Sioux City?

A. I have not said that.

Q. That is why I am interrogating you. So that when you say that Sioux City caused the problems of taste and palatability of water, a more correct answer would have been that Sioux City and Yankton and all of the other cities involved caused this taste factor in Omaha, isn't that correct?

A. No, sir, I do not believe so.

Q. You don't believe so?

A. My statement stands as it was. It is my opinion on evaluating the information that Sioux City was the major cause of the increase of organic soluble material.

Q. But your information didn't include these other sources of pollution below Sioux City, did it, as to amounts?

A. Relatively, yes. My opinion was based upon the relative amounts of pollution put into the river at these various points.

Q. What are the relative amounts, for example, as between Sioux City and Denison?

A. This would take a special study. I am not prepared to give it to you here. I can get it for you and I am fully aware of what the various discharges of wastes are, have been fully aware, along the Missouri River but I am not prepared and I have not prepared myself to give that information here today.

Q. Do you have any data to indicate the relative amounts in any unit measurements you wish discharged by, for example, the Sioux City air base?

A. This information is relatively available, requires a certain amount of effort to get it, and I am sure that you can get it and the court can get it very easily as to the waste discharges at these various points along the river.

Q. What is difficult for me to understand, Dr. Ryckman, is the reason that you did not get those in making your study?

A. They were taken into consideration in the study.

Q. By you?

A. Absolutely.

Q. Well, you would agree, then, with this one premise, that the water at Omaha as far as the odor and taste are concerned or, rather, the odor and taste at Omaha in its water at the Florence intake can be partially, at least, the result of the things I have mentioned, that is farm runoff and contributions by other municipalities closer to Omaha?

A. I will agree that they are all factors.

Q. No taste tests were made of anything just above Sioux City?

A. No, sir.

MR. DAVIS: That is all the questions I have, Mr. Chairman.

CHAIRMAN WILSON: Any members of the Board any questions?

MR. METZLER: Excuse me, Mr. Chairman. I do have a couple questions I would like to ask Dr. Ryckman.

Q. (By Mr. Metzler.) Dr. Ryckman, you gave some testimony about these chloroform soluble fractions and I would like to get this down in terms that as a layman maybe I can understand this. Have you made some tests which might give some comparison between a relatively unpolluted stream such as a trout stream in the Ozarks or the Columbia River in the northwest or some other source that is acknowledged to be relatively unpolluted, do you have any tests or knowledge of work that has been done in a stream of that sort so that you could give the Board some comparative figures?

A. Yes, I have had knowledge. I will do my best to recall it. I can give it in a general way, that chloroform soluble materials taken from remote sources, from waters which are remote from pollution, mountain streams and things of that nature, have much less quantity of organic soluble materials than heavily polluted streams.

Q. The only other question I have, then, Mr. Chairman, is to--I gathered from his testimony here that he believed that so far as the farm land runoff, the other sources of pollution downstream, the communities that were mentioned, the air base, that their contribution was relatively insignificant in the total problem as compared to that from Sioux City. Am I correct in that understanding?

A. That is right, sir.

MR. METZLER: That is all.

Q. (By Mr. Samson.) Dr. Ryckman, on the exhibit that you have right behind you. there you have neutrals 55.5 percent in the composite outfall sewers and 63.8 percent in the Floyd River industrial. What are those neutrals? What is the makeup of that? Could you tell us that?

A. It is not easy to get a classification of it. Just like the sample that was passed around to you, the total extract. This is a mixture of many, many types of organic components. As far as this study is concerned, this is a--using an extraction procedure, a method that has been set up by the Sanitary Engineering Center at Cincinnati, Ohio, this represents a portion of the total compound, total material, which is known to cause, contribute, a large share of the odors from chloroform soluble material.

Q. Now, where would those neutrals come from? Where do they originally start from?

A. As you noticed, these come from--you find them in both the domestic wastes from Sioux City and from the industrial wastes from Sioux City, and this in turn classifies that group that we have. In this type of waste (indicating) we have fifty-five to sixty-four percent of those materials. It means that they come from the material that you find--organics that you find in domestic sewage, such as you have in Sioux City, and also from the industrial wastes such as you have in Sioux City.

Q. Well, now, you refer there to weak acids. Where is the origin of that breakdown? What is the nature of the acid and what is the ultimate origin of the acid?

A. They are organic acids, of course, and they are relatively--and this is the classification of organic acids, the weak ones, the ones that would be, well, in terms of pH would not ionize as readily as the ones that are classified as strong acids.

Q. Would those two groups be the type of material that would come from a man or a warm-blooded animal?

A. Yes.

MR. SAMSON: That is all. Thank you.

CHAIRMAN WILSON: Any other questions?

That is all, Doctor.

MR. STEIM: The Government has a question or two.

CHAIRMAN WILSON: Do you have some more:

MR. EDELMAN: We have one or two, yes, Mr. Chairman.

CHAIRMAN WILSON: Go ahead.

REDIRECT EXAMINATION

BY MR. EDELMAN:

Q. Dr. Ryckman, is it a fact that in November and December when these samples were taken the Missouri River was in low flow and there was very little runoff? Isn't that customary in this reach of the river at that time of the year?

A. Well, yes, this year the report from the Regional Office is that we had low flow in the Missouri River during the month of December.

Q. Have you studied the extent to which the organic material that contains this chloroform soluble extract persists and is, shall I say, potent in the Missouri River?

A. Yes, sir.

Q. Can you tell us what that study shows?

A. It shows that these odorous materials are accumulating in the Missouri River as we go downstream, and our laboratory studies which simulate the condition in the river substantiate this, that they are resistant to breakdown.

Q. Are you saying, in other words, that once this material is put into the river it tends to persist for a long distance in the Missouri River?

A. That is the finding.

Q. Tends to be present. Dr. Ryckman, approximately 3,400 pounds which is the total output of domestic and industrial waste of this character from Sioux City indicated on that chart, is that a high amount or a small amount in the light of the volume of water available in the Missouri River?

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial, no foundation has been laid, and improper redirect examination.

MR. EDELMAN: That is a strange objection, Mr. Davis, in view of the latitude we have both enjoyed, the latter part.

CHAIRMAN WILSON: May we have that question, please?

(Question read.)

CHAIRMAN WILSON: I think we will receive the testimony subject to the objection for whatever weight it may have. Objection overruled. Subject to the objection.

A. I would say, judging from the nature of the material, that this is a large amount.

MR. EDELMAN: That is all, Mr. Chairman.

MR. KURYLO: I have a question, Mr. Chairman.

CHAIRMAN WILSON: Mr. Kurylo.

Q. (By Mr. Kurylo.) In your closing statement on direct examination you indicated that the odor-producing materials can be reduced through proper sewage treatment. Are you qualified to specify and clarify the words "proper sewage treatment"?

A. Yes, I would be glad to clarify the use of the word "proper".

Q. I would appreciate it if you would.

A. My use of the word "proper" was to indicate that several alternatives should be studied carefully and a logical conclusion decided upon as to the method of sewage treatment. I would not want to indicate the type of sewage treatment that I would recommend at this time without further study.

Q. But you can recommend available alternates from which you would make a recommendation, can you not?

A. Absolutely.

Q. Would you do that for the record?

A. I would investigate activated sludge treatment and accelerated biochemical treatment. I would investigate chemical means of treatment among my first alternates. Included with this, of course, primary treatment, sedimentation, screening, and such units as that.

MR. KURYLO: No further questions.

MR. METZLER: May I ask one more question?

CHAIRMAN WILSON: Mr. Metzler.

Q. (By Mr. Metzler.) In your studies, Dr. Ryckman, have you developed any information or do you have any information on how much of this chloroform soluble material, either in concentration or let's say in ounces per million gallons, would produce some perceptible odor in treated water?

A. Yes. Approximately one pound in a billion pounds of water would cause an odor. Excuse me, may I correct that? I said one pound, didn't I?

Q. Yes.

A. I meant from approximately four hundred pounds in a billion pounds of water.

Q. I see.

A. Four hundred pounds of organics in a billion pounds of water would cause a perceptible odor.

Q. That is the order of three hundred twenty-five or so parts per billion?

A. Around four hundred parts per billion, right.

CHAIRMAN WILSON: Any further questions? Are we all through?

MR. EDELMAN: No more.

CHAIRMAN WILSON: That is all, Doctor.

(Witness excused.)

MR. DAVIS: At this time, Mr. Chairman, before another witness is called, the City of Sioux City moves to strike all of the testimony of the last preceding witness, Dr. D. W. Ryckman, for the reason that the evidence introduced is incompetent, irrelevant and immaterial in this matter.

CHAIRMAN WILSON: Motion denied. The testimony will be received, subject to the objections made.

MR. EDELMAN: Mr. Chairman, we have a group of witnesses who have not been sworn and it occurs to us it might expedite the proceeding if the Board will permit this group to be sworn now so that they will be available for testimony throughout the afternoon.

CHAIRMAN WILSON: Yes, will you get the deputy clerk.

SECRETARY AYERS: Will you call your witnesses?

MR. DETMAR: Mr. P. L. Edwards, John P. Hillebrandt, C. R. Fick, Allard D. Shanahan, William Bolin, Monte West, Wayne Ross, and Harry Kennett.

(Witnesses sworn.)

MR. EDELMAN: Mr. Herbert Hartung, please take the stand.

HERBERT O. HARTUNG,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Mr. Hartung, I remind you you were sworn in earlier and the testimony you are about to give is still subject to that oath. Will you give your full name and identify yourself for the record?

A. I am Herbert O. Hartung. I am Vice-President and Manager of Production of the St. Louis County Water Company. This Company is a public water supply utility supplying water to about 600,000 people in the suburbs of St. Louis. Associated with the St. Louis County Water Company, and [illegible] associated with that company, is the Missouri Water Company of Lexington, Missouri, and the Lexington, Missouri, Water Company also takes its water from the Missouri River.

Q. Mr. Hartung, are you an officer of a committee composed of public water supply utilities with an interest in the quality of Missouri River water?

A. Yes, I am. I am appearing here in my capacity as Chairman of the Missouri River Pollution Monitoring Committee. This committee is a task force group formed in July 1957 by the Public Water Supply Utilities at Yankton, South Dakota, Omaha, Nebraska, St. Joe, Missouri, Kansas City, Missouri, Lexington, Missouri, Jefferson City, Missouri, St. Louis, Missouri, and St. Louis County, Missouri. This committee was formed by these utilities for the purposes of studying the amount, kind and the effect of the water pollution on public water supply. The committee itself is composed of the technical representatives of each of these utilities, sanitary engineers, a chemist, bacteriologist, and the water treatment plant operators. The composition of the committee has been such, has been organized and is such, that they are studying these pollution problems in the Missouri River and because of the technical nature and extreme difficulties of some of the analyses they have retained Washington University Sanitary Engineering School to do some of the more intricate and detailed analysis required in conjunction with that task group study.

Now, in addition to that the committee has used from time to time the technical assistance available from the Taft Engineering Center at

Cincinnati, Ohio, has availed itself of information from the various state Boards of Health in the lower Missouri River Basin, and has also utilized information which it could acquire from the Regional Public Health Office, U.S. Public Health Service, in Kansas City. And the things that I have to say to the Board this afternoon are the result of a study of that committee, a composite thinking of all of the people who make up this task group and who have contributed to the committee. I myself have been in a position where I have been aware of the committee work and have studied the committee results and reports in considerable detail.

Q. Mr. Hartung, before we proceed with that aspect of your testimony, can you tell us the formal degrees that have been awarded you?

A. I am a graduate of the University of Kansas with a B. S. in Civil Engineering. I am also a member of the Academy of Sanitary Engineers, I am a professional engineer registered in the State of Missouri, and have graduate work in chemistry.

Q. Have you any publications in the field of water supply and water treatment?

A. Yes, I have a few.

Q. Can you tell us what some of them are?

A. Most of my publications have been in the Journal of the American Water Works Association and they relate to subjects on water treatment and its effect on human consumption.

Q. Now, Mr. Hartung, as Chairman of this committee can you tell us what your experience with the water in the Missouri River at its present level of quality has been?

A. Yes. May I explain it? The committee work is still in progress--

CHAIRMAN WILSON: Mr. Hartung, will you please try to talk to the farthest member of the Board over here rather than talking to counsel?

A. I am sorry if they are missing my remarks.

The findings to date by this task group committee which I have just described have been that there is considerable pollution between Yankton, South Dakota, and Omaha, Nebraska. The chloroform soluble organic materials in the river at Omaha are about a thousand pounds per day on the average higher than they are at Yankton, South Dakota, and we consider these very detrimental to public water supply. And if you please, sir, I have a chart here which will show that relationship of chloroform soluble materials at Yankton, South Dakota, and at Omaha, Nebraska.

Q. (By Mr. Edelman.) Do you have that chart here?

A. Yes, sir.

Q. Will you hold it up so counsel can take a look at it?

MR. EDELMAN: We would like to mark that Government Exhibit--is it 19?

SECRETARY AYERS: 20.

MR. EDELMAN: --20 for identification.

(Government's Exhibit No. 20
marked for identification.)

Q. (By Mr. Edelman.) Mr. Hartung, was that chart prepared under your direction or supervision?

A. That chart was prepared at my request and contains the data which the Missouri River Monitoring Committee has acquired. May I explain the chart?

Q. Mr. Hartung, the last bar on that chart is the St. Louis-Howard Bend. Does that represent the findings with respect to the plant of which you are Manager of Production?

A. No, it does not. However, the amount of material at the plant of which I am Manager of Production is equal to that at the Howard Bend plant. The Howard Bend plant is half a mile upstream from one of the plants for which I am responsible.

Q. Where did you get the data for the St. Louis-Howard Bend bar line?

A. That data was accumulated by one of the task group committee members who is a professional engineer at the Howard Bend plant, City of St. Louis. The procedure was that already described in previous testimony of continuously sampling Missouri River water and passing it through a carbon filter. Then after the material, the organic material, is trapped in this organic filter by standard procedures it is extracted with chloroform and the chloroform evaporated and the residue weighed. And then based on flow this total amount of material represented by the bar on my right as I face the chart, that is the total amount of material in the river.

Q. And that data was submitted to you routinely as part of the work of this committee?

A. Yes, it was, as it was to all other committee members.

MR. EDELMAN: I offer that exhibit in evidence as Government Exhibit 20.

MR. DAVIS: May I ask a question before objection, Mr. Chairman?

CHAIRMAN WILSON: Yes.

MR. DAVIS: What is the third bar? Does that indicate that at St. Louis the average poundage is 17,000 whereas at Omaha it is 5,000?

A. That is a correct explanation, yes.

MR. DAVIS: The exhibit is objected to as incompetent, irrelevant and immaterial in this matter.

CHAIRMAN WILSON: Received subject to the objection.

(Government's Exhibit No. 20
received in evidence.)

Q. (By Mr. Edelman.) Will you explain the significance of that chart, Mr. Hartung?

A. Yes. On the basis of continuously monitoring the river, and I mean continuously, the amount of chloroform soluble materials averaged about 4,000 pounds per day at Yankton, South Dakota, and around 5,000 pounds per day at Omaha, Nebraska. There was an increase of a thousand pounds per day and is a thousand pounds per day, on the average, increase between Yankton, South Dakota, and Omaha, Nebraska, and this material is considered to be significant by the Missouri River Pollution Monitoring Committee.

Q. To what extent is the condition at the St. Louis-Howard Bend, as indicated by that bar 17,000, attributable in any part to the condition at the left of the chart which shows 4,000 for Yankton and approximately 5,000 for Omaha?

A. The amount of material which is at St. Louis is accumulative from all other sources of pollution into the river and the amount of material introduced in the river some place between Yankton and Omaha, Nebraska, makes a material contribution on the total amount up at St. Louis.

Q. Does the Missouri as a source of water supply present any special problems to water treatment plants insofar as taste and order is concerned?

MR. DAVIS: I am sorry, Mr. Witness. I didn't hear the last part of the question, Mrs. ankin.

(Question read.)

A. The answer to that is yes. And may I explain why? The very fact that the Missouri River Monitoring Committee was organized is an indication that we were having problems with the treatment of Missouri River water. The fact that all of the water utilities from Yankton, South Dakota, down to St. Louis are cooperating in this study is an indication of the extent of the trouble we are having over the entire reach of the river, which is about an 800 mile stretch. These tastes and odors with which we are having to deal are sometimes characterized by the customers as being too much chlorine, and that is erroneous, because it is a medicinal taste that occurs but it isn't a chlorinous taste. Sometimes they are called medicinal by the customer, sometimes they are called musty, woody. We have had the term metallic used to characterize the odor--or taste. And then in other cases sometimes the after or the lingering taste that you have in the mouth has been more pronounced than while the water itself was being consumed. There have been occasions where the consumer has compalined about the taste of his frozen orange juice or his instant coffee which has been prepared from the water. And all of these are related to the organic material which is in this raw water and with which the water treatment plants have had difficulty in trying to remove them.

Q. (By Mr. Edelman.) Is there any difference as far as the acuteness of this condition between the upstream plants and the downstream plants in this area we are talking about?

A. Yes. The far downstream plants obviously have considerably more trouble than the upstream plants. This is easily explained on the basis of logic, that the farther downstream you get the more pollution that is introduced in the water and consequently the more trouble you have. And the amount of trouble you have is proportionate to the amount of organic material that is in the river water. I would like to point out, though, that every little bit counts and when you add some to some more, the problem multiplies in direct proportion to the amount that you are adding as you go downstream.

Q. Are these taste and odor problems within the capacity of water treatment facilities now in existence or which within reasonable time could be constructed and operated?

A. To answer that question I should first point out that all of the water plants who are associated in this Missouri River Monitoring Committee group are modern water treatment plants. All of them have been renovated, built or added to within recent years. Technically they are staffed with very competent people. This, I think, is an answer to your question, that inasmuch as they are having difficulty in handling the taste and odor conditions within their own water plant and inasmuch as they have the very latest in water treatment equipment and have the best in skills that can be obtained to staff these things, it is fairly apparent that the present type of water treatment plant which is available to public water supply will not handle these materials that are in the river water.

Q. You indicated earlier that adding a little bit to more results in a greater total. To what extent do you consider that the portion of these taste and odor causing materials which originate between Yankton and Omaha and past on the Missouri River contribute to the problem as far down as St. Louis?

A. It is not easy to be very specific about that. We do know that there are some 3,400 pounds per day, on the average, of organic materials introduced into the river at Sioux City. We do know that some of that goes through biological degradation. But we also know the fact that there are 1,000 pounds more material, organic soluble material, at Omaha than there are up at Yankton. So that we know that the contribution from Sioux City is a part of the total and inasmuch as it reaches Omaha in the quantity of 1,000 pounds per day, this is a very important part of the total and if removed at Sioux City would proportionately decrease our problems.

Q. Speaking as the manager of a water treatment plant and as the Chairman of the Committee, of the Monitoring Committee, do you have any opinion as to how the taste and odor problem faced by the water plants in this section of the Missouri can be helped or substantially minimized?

A. Why, yes. To remove the material at Sioux City from the river would give us that much relief far downstream. And I think I also should point out that inasmuch as 80 percent of this 3,400 pounds per day of material which is being introduced into the river here at Sioux City is in this neutral or weak acid group, which is the odorous and obnoxious material or portions of the material of the organic groups, inasmuch as 80 percent of them are in these two weak and neutral acid groups the removal of the material from Sioux City from the river would give us a tremendous help in the quality of the water downstream.

MR. EDELMAN: We have no more questions, Mr. Chairman.

CHAIRMAN WILSON: You may cross-examine.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Hartung, as I understand the chart, Exhibit 20, it shows that at Yankton, South Dakota, there is a little over 4,000 pounds per day, on the average, of organic extracts which are chloroform soluble and can cause taste and odor problems, is that correct?

A. A portion of those 4,000 pounds per day can cause taste and odor problems.

Q. I see. And that Omaha--

CHAIRMAN WILSON: Counsel, may I ask you to step back so that you won't shield the witness from the Board?

MR. DAVIS: All right. Will I be in anyone's way here?

MR. EDELMAN: No. That is fine.

Q. (By Mr. Davis.) At Omaha, according to your chart, Exhibit 20, the average poundage which contributes to the cause of the taste and odor problem has increased to 5,000, is that correct?

A. That is correct.

Q. Which is an increase between Yankton and Omaha percentagewise of about what, if you can compute it? I can't.

A. It is about 20 percent.

Q. About 20 percent. Now, as between Omaha and St. Louis the increase of the average poundage per day is from 5,000 to 17,000. Am I reading the chart correct?

A. You are reading the chart correct.

Q. Which percentage-wise is an increase of how much?

A. Approximately 300 percent.

Q. In fact, a little over 300 percent?

A. A little over, yes, sir.

Q. I suppose that the conclusion to be drawn is not as simple as to say that the St. Louis water smells three times as bad as Omaha's or am I getting close?

A. No, that isn't--we are having considerably more trouble at St. Louis than they are at Omaha based upon the reports to our committee, but it isn't that simple a proportion. And the reason for that is the fact that the portion of the organic soluble material which stays in the river water is not degraded by biological oxidation, has greater odor potential than the material that is in the river upstream, so that the longer it stays in there some of the stuff gives you more trouble. So it may even be more difficult than 300 percent downstream or it may be less difficult than 300 percent because there is still another factor in this thing and that is the amount of dilution water which comes from tributary streams into the Missouri River. The data here is factual. It says that we have this many pounds of material in the river water at St. Louis. We have this many pounds of material in the river water at Omaha. And the amount of trouble that you have in a water plant depends both on the kind of material that is in this chloroform extractable material and also the amount of dilution that you have from runoff, tributary flow, and that type of thing.

Q. And I would suppose that we could then say that the potential for difficulty in taste and odor is a little over three times as great at St. Louis as Omaha?

A. I can't use the figure 300. I could say that the potential for difficulty is greater at St. Louis than it is at Omaha.

Q. All right, sir. In your private capacity you are manager of the water supply system in St. Louis or just the county?

A. In St. Louis County.

Q. In St. Louis County. Does that include the city?

A. It does not include the city.

Q. But the figure of 17,000 you say also applies to the water which you are processing too?

A. Yes, it does..

Q. And you of course are still selling that water to people in St. Louis County?

A. Yes, we are.

Q. Now, there was no test made just above Sioux City that you know of to assist you in preparing this chart?

A. Yankton is the next upstream point to Sioux City, a member of our committee.

Q. In your private capacity does your organization, your company, operate the water supply system at Lexington, Missouri?

A. That is right.

Q. Do you have any figures that would fit into this particular Exhibit 20 concerning the average poundage at Lexington?

A. I do not have them with me. We have the figures. I can say in characterization that they are in between Omaha and Howard Bend, yes.

Q. They probably would rise proportionately?

A. No, it isn't a straight line proportion. There is a difference. It doesn't rise on a straight line proportion because the in points on the river have to do with the way the curve goes.

Q. Is the water supply at Lexington, Missouri, approved by the State of Missouri for domestic use?

A. Yes, it is.

Q. Has it been at all times during the last five years?

A. Yes, it has.

Q. Is it also approved by the United States Public Health Service?

A. Yes, it is. May I explain that answer?

Q. Yes.

A. We in our company operations consider the U. S. Public Health Service standards as minimum standards and inasmuch as we are a utility operating company and a service type of organization we think that the customer is entitled to a quality water which exceeds that which is set up as a minimum standard by the U. S. Public Health Service.

Q. Has the water at Lexington, Missouri, within the last five years always exceeded the standard?

A. Here is my reason for concern and reason for all of the utilities forming a Pollution Monitoring Committee. We are having considerable difficulties, increasing difficulties, in keeping the quality up to the standards we set for ourselves, even though they are in excess of the minimum standards set up by the U. S. Public Health Service for public carriers.

Q. As far as the presence of coliform organisms is concerned has the water at Lexington, Missouri, during the last five years or the last ten, if you know, at all times met the standards set up by the State of Missouri and the United States Public Health?

A. As long as I have been--

MR. EDELMAN: Mr. Chairman, I object. I think that is beyond the scope of proper cross-examination. It wasn't introduced on direct testimony.

CHAIRMAN WILSON: Proceed, subject to the objection.

A. As long as I have been associated with Missouri Water Company based upon monthly averages, not on daily test--

Q. (By Mr. Davis.) All right.

A. --the water samples at Lexington, Missouri, speaking only of bacteriological results, have met U. S. Public Health standards.

Q. And how long have you been with them?

A. Our company has controlled the Missouri Water Company, and my memory here is not exact, but it is something like seven or eight years, something like that.

Q. Seventeen?

A. No, seven or eight years.

Q. Seven or eight?

A. Thereabouts. That date needs checking. I have forgotten it.

Q. Have you had some trouble at your Lexington, Missouri, water intake because of the discharge into the Missouri by Kansas City, Kansas, and Kansas City, Missouri, of industrial wastes which I would characterize as by-products of refineries, and so forth, as distinguished from organic materials, oils, and so forth?

A. We have had difficulties at Lexington with taste and odor problems in the public water supply there. Our studies are continuing as to the exact sources of that trouble. We do know what the total amount of organic materials are at Kansas City, at the Kansas City Water Departments sampling station, and we know what they are at the Lexington Water Company, so that there is some increase due to Kansas City pollution. Whether or not Kansas City is solely responsible for it or just a major responsibility for the troubles at Lexington is still a matter of investigation and study. However, the feeling is, based upon what we already know, that inasmuch as there is material coming from up above Kansas City down to Kansas City and Kansas City is having troubles just as we are having trouble in St. Louis, that all of the points upstream are contributory to the total problem.

Q. I think I probably misled you, Mr. Hartung. I had more in mind mechanical difficulties with your equipment occasioned by oils and greases, and so forth, from these by-products of the refineries in the two Kansas Cities?

A. Mechanical water purification equipment difficulties?

Q. Have you had any difficulties because of this particular type of pollution?

A. If I understand your question, the only difficulties we have had that are not routine difficulties have been due to the fact that taste and odors have been in the public water supply there.

Q. Do you have any information concerning what the average monthly coliform count has been in the river at your Lexington, Missouri, plant for the last seven years?

A. I do not have that material with me, so I can not answer it today.

Q. Would you know how high it has gone on occasions?

A. I would be conjecturing a little bit if I would pick out a maximum number. It is fairly high.

Q. Could you conjecture within a hundred thousand, say?

A. Well, let's see, within a hundred thousand, a hundred percent? There is some risk in doing it.

MR. EDELMAN: Mr. Chairman, I object on the ground that this is improper cross-examination, it is beyond the scope of the direct. The counsel has made the witness his own witness. This was not brought out in the direct examination, and therefore I submit h[illegible] concluding by the answer of the witness in which he says that he can not remember and can not tell him the answer.

CHAIRMAN WILSON: Well, I think the answer of the witness may stand, subject to the objection. It practically indicates that the witness can not answer the question.

Q. (By Mr. Davis.) Government's Exhibit No. 4, if I remember correctly, the Water Pollution Series No. 47 dated October of 1952, indicates that at the time that the tests were made which resulted in that report the average monthly coliform count--

MR. EDELMAN: What volume?

MR. STEIN: What exhibit is that, sir?

MR. DAVIS: Wasn't that the October '52?

MR. STEIN: No, sir, that was not entered as a Government exhibit.

MR. DAVIS: It what?

MR. STEIN: It was not, we did not--

MR. EDELMAN: Exhibit 4 is the comprehensive program.

MR. DAVIS: Oh, I have been in error, Mr. Chairman, all along, then, where I referred to Exhibit 4. I would like to-- Well, has that report been offered yet?

MR. EDELMAN: No, it hasn't.

MR. STEIN: No, it has not.

Q. (By Mr. Davis.) Mr. Hartung,--

MR. EDELMAN: For the record, Mr. Chairman, may I inquire whether your earlier references to Exhibit 4 in the cross-examination of witnesses referred to the volume you now have in your hand?

MR. DAVIS: Which is the Water Pollution Series No. 47, lower Missouri River Basin, water pollution investigation, of October of 1952. And I would like the record to show that in all my references to Exhibit 4 I meant to refer to the document I have just identified by its name. I was in error in it.

CHAIRMAN WILSON: Well, are you now referring to another exhibit different than the one you first mentioned?

MR. DAVIS: Yes. Well, I am referring to another document which has not been admitted in evidence.

CHAIRMAN WILSON: It hasn't been introduced in evidence?

MR. DAVIS: That is correct, sir.

CHAIRMAN WILSON: Well, of course if you intend to base an examination on it it should be marked and offered in evidence.

MR. EDELMAN: Mr. Chairman, the concern of the Government is that that has apparently already been used in the examination of earlier witnesses and we have been somewhat at a loss as to where these statements were coming from. I don't think they appeared in the actual Exhibit 4. I realize, I am sure that was inadvertent on the part of Mr. Davis.

CHAIRMAN WILSON: Well, no objection was interposed to that at the time.

MR. EDELMAN: He referred to an exhibit, Mr. Chairman, and we assumed that he was referring to the actual exhibit, but in point of fact he was referring to a document which had not been introduced as an exhibit and calling it a Government exhibit. We didn't inspect the document.

CHAIRMAN WILSON: Well, if any point is to be made of that, of course, it would be necessary to go back through the record and specify the particulars in which you indicate that that mistake had some effect. Otherwise we can do nothing more than take the testimony as it came in for what it is worth.

But if counsel wants to examine this witness now with reference to some document that hasn't been offered in evidence, then the ruling is that it should be marked and offered and be subject to any objections that the Government may wish to make.

MR. DAVIS: Now, Mr. Chairman, if you please, I would like to have the record show that all of my references to Exhibit 4 hitherto in this hearing have been in error and were not directed to the water--

CHAIRMAN WILSON: Is that the exhibit itself?

MR. DAVIS: Well, that isn't an exhibit.

MR. SAMSON: No, that is my personal copy.

MR. DAVIS: But that I should have--

CHAIRMAN WILSON: Then can you describe the document to which you previously made reference?

MR. DAVIS: Which I erroneously identified as Exhibit 4, yes, sir. That is the Water Pollution Series No. 47, lower Missouri River Basin, water pollution investigation, a cooperative state and federal report on water pollution, for October of 1952.

CHAIRMAN WILSON: Well, do you now wish to make further use of that copy in connection with the examination of the witness?

MR. DAVIS: Yes, I do, for this reason. We are taking, at their request, certain witnesses out of order. I do not think that, if my assumption is correct that this is going to be in evidence, I should now be restricted from using it simply because of the accommodation to the witnesses. In other words, I feel this will be in evidence eventually.

CHAIRMAN WILSON: Just a minute. You propose to have it marked and offered in evidence now?

MR. DAVIS: I do not.

CHAIRMAN WILSON: Does the Government intend to have it marked and offered in evidence?

MR. EDELMAN: We do not.

CHAIRMAN WILSON: If you wish to ask any questions with reference to it, go ahead and ask them, and if there are any objections made we will rule on them at the time.

MR. DAVIS: I want to point out to the Chairman--

CHAIRMAN WILSON: I understand you are using this in connection with your cross-examination of this witness?

MR. DAVIS: Yes, sir.

CHAIRMAN WILSON: And you propose to connect him in some way with the authorship of some of the material to which you call attention?

MR. DAVIS: No But I would like to point-- As far as that is concerned, I have no objection to making him my own witness on this line of questions, if that will ease the situation.

CHAIRMAN WILSON: Well, inasmuch as he is not a Government--

MR. EDELMAN: He is a Government witness.

MR. STEIN: He is a Government witness.

CHAIRMAN WILSON: I don't mean--he is a Government witness?

MR. EDELMAN: Yes, sir.

CHAIRMAN WILSON: He is not a Government official?

MR. EDELMAN: No, sir. As far as I know he is not responsible for anything in that document.

MR. STEIN: And he is not being taken out of order.

CHAIRMAN WILSON: It has been the feeling of the Board that in the examination of Government officials that all parties should be allowed the full privilege of asking them any questions relevant to the issues here, even though perhaps not strictly speaking within the realm of immediate cross-examination, because their findings should be open to all parties concerned. But in the case of a witness of this character, even though he is a Government witness, I think that if counsel for the city wishes to examine him on some matter that is not proper cross-examination we would rule that he should make him his own witness and perhaps call him in different order at this time.

MR. DAVIS: My recollection, subject to the Board's recollection, is that the transcript of the conference held in July, on July 24, of 1958 was received into evidence here over my objection. Am I correct in that?

MR. SAMSON: I believe that is right.

CHAIRMAN WILSON: As what number?

SECRETARY AYERS: 7.

CHAIRMAN WILSON: The Government should know what that is.

MR. SAMSON: Yes, Exhibit 7.

MR. DAVIS: Now it is my further recollection that the document to which I now refer, which I think for purposes of simplicity I can refer to as the Water Pollution Series No. 47, was an exhibit in this conference, the report of which has been received by you in evidence. Now, am I incorrect in that?

MR. EDELMAN: I think your recollection is correct, it was introduced as an exhibit at that conference.

MR. DAVIS: So that we have-- I am now referring to a document which was an exhibit in the conference on July 24, 1958, the transcript of which, to include this document, you have received in evidence over my objection. Now, based on that I would like to refer to that Water Pollution Series No. 47 in my questioning of this witness.

CHAIRMAN WILSON: Does the Government object to such use of this document?

MR. STEIN: We would have no objection to his using this document at all if instead of engaging in the technical procedure he would just ask if we had any objection. We would be very happy for Mr. Davis or any Sioux City counsel to use this document or any portion of it.

MR. DAVIS: Then you are not disowning it at this time?

MR. STEIN: No, not at this time or any other time nor did we ever disown it.

CHAIRMAN WILSON: Well, the ruling will be that if you want to question this witness or any other witness generally with reference to this document it should first be marked and offered in evidence. Now, if you wish to question this witness on cross-examination and refer to something in this document of which you claim he is the author for the purpose of that cross-examination, that is a different matter. You may ask any question you wish along that line and it will remain, subject to the Government's objection.

MR. DAVIS: Have I made my position clear? I do not intend to ask him about anything in this document of which he is the author, sir. I think that is our general misunderstanding. Nor do I intend to offer this document in evidence. I think it already is through the back door in your admission of the transcript. And I certainly am never going to be in the position of vouching for the credibility of this document.

MR. EDELMAN: Mr. Chairman, do I understand Mr. Davis to take the position that all the exhibits mentioned in the transcript which has gone into evidence over his objection--

MR. DAVIS: Over my objection.

MR. EDELMAN: --have also in effect been received in evidence as part of that transcript?

MR. DAVIS: Perhaps you gentlemen--

MR. EDELMAN: No such offer was made, I may point out, that there was an exhibit introduced into the record of this hearing which was specifically introduced. Now, if you wish to take the position that this book, this 1952 book, was in effect a part of the transcript because it is mentioned in there, we would have no objection to that assumption on your part.

CHAIRMAN WILSON: Let that be clearly understood, that this document will have no evidentiary value as such unless it is marked and received in evidence. Now, if counsel wants to refer to that for the purpose of composing his own questions and submit a question along that line by reference to a certain part of this document, that will be subject to any objections that the Government counsel may wish to make and will be ruled on after the question is presented.

MR. DAVIS: I believe, Mr. Chairman, rather than meeting this question head on at this time that I can ask my questions another way and I only have about two of them to ask, which will work out satisfactorily. I will state to the Chairman it is my intention to refresh this witness's recollection.

Q. (By Mr. Davis.) So I will say to you, sir, that the city has been in the receipt of certain information to indicate that the average coliform count figured as the most probable number on a monthly basis at your water intake of your plant in Lexington, Missouri, has been one hundred thousand. Now, does that meet with your recollection of the last seven years average, monthly average.

MR. EDELMAN: Mr. Chairman, I object. The witness has already testified that he is in no position to answer as to the coliform count at the raw water intake. That is--this question is examination beyond the scope of the direct examination. I suggest that the counsel is concluded by the witness's earlier answer on this point.

CHAIRMAN WILSON: Well, I think, counsel, that this goes into subject matter that wasn't covered by the direct examination and for that reason, and this man not being a Government official, I think you had better make him your own witness.

MR. DAVIS: Yes. I thought I did. For these questions I do.

CHAIRMAN WILSON: Do you want to have the privilege of doing that at this time, out of order?

MR. DAVIS: I do, unless he wants to stay over until our case comes up.

CHAIRMAN WILSON: Is that going to embarrass the Government in any way, to permit this witness to be examined now as the witness for the city?

MR. STEIN: It would not embarrass us in the least, sir, but we have planned to put nine other witnesses on and if we could be assured that the examination of this witness could be concluded in a reasonable time, we certainly would have no objection.

CHAIRMAN WILSON: Well, how long will this take, Mr. Davis?

MR. DAVIS: Three questions, four.

CHAIRMAN WILSON: Well, go ahead. Let's see how far we get.

It is understood, then, that this line of testimony is being--the witness is a witness for the city.

HERBERT O. HARTUNG,

called as a witness on behalf of the City of Sioux City, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DAVIS:

Q. Mr. Hartung, we have information to indicate that your average coliform count on a monthly average--

MR. STEIN: Pardon me.

MR. EDELMAN: May I interrupt you? As has already been pointed out, this Board does not have subpoena power and neither do any of the counsel here. Now, the Government has graciously yielded Mr. Hartung to Mr. Davis, but I would suggest that the Chairman ask Mr. Hartung whether he is willing to be Mr. Davis witness.

CHAIRMAN WILSON: Well, of course, he could refuse to answer.

I will ask Mr. Hartung if he is willing to answer these questions as a witness for the city?

MR. DAVIS: All right, Mr. Chairman, I will say this to you, that if you don't have the power to subpoena then we probably can't proceed too far towards the close of this hearing. I think you do under the Administrative Act and if you are interested in the section I can give it to you. I don't think you have any doubts as to whether you can issue a subpoena. But I never in my life, in all courts or administrative boards, have heard a counsel say that a witness in the courtroom can refuse to testify because he hasn't been subpoenaed. Now, I intend not to ask Mr. Hartung any questions which he will need to take refuge in the Fifth Amendment.

CHAIRMAN WILSON: Well, you proceed with your examination, Counsel. We will see how far we get.

MR. DAVIS: All right. We won't have to ask him if he wants to testify then?

CHAIRMAN WILSON: No. Go ahead.

MR. DAVIS: All right.

CHAIRMAN WILSON: He can decide that question for himself when you get through with your question.

Q. (By Mr. Davis.) Mr. Hartung, the City of Sioux City has information which leads it to believe that the average daily or average monthly or the average coliform count on a monthly basis, figured in accordance with the more probable number, at the water intake of your Lexington, Missouri, plant from the Missouri River has for the last seven years been in the vicinity of one hundred thousand per one hundred milliliters. Now I ask you as to what your recollection is concerning that?

A. I have seen some counts as high as a hundred thousand per hundred ml. I do not recall that those are monthly averages. I just don't recall.

Q. If subsequent to your appearance here--I withdraw that question. Now, insofar as the matter of coliform organisms are concerned at your plant in Lexington, Missouri, during the past seven years while you have been in charge of it, you have always met the minimum requirements as established by the State of Missouri, the Federal Government, and your own industry, is that correct?

A. That is correct.

MR. DAVIS: That is all.

CHAIRMAN WILSON: Do you have any cross-examination, Counsel?

MR. EDELMAN: No, sir.

MR. STEIN: No.

CHAIRMAN WILSON: Members of the Board?

MR. SAMSON: I have one short question.

Q. (By Mr. Samson.) Mr. Hartung, you said that you were having considerable difficulty keeping water up to standards set by yourself and the United States Public Health Service. Would you be so kind as to tell us what you meant by that, the nature of your difficulty?

A. They pertain to taste and odors. The United States Public Health Service standards are not specific about what constitutes a palatable water. With our own standards we do have some pretty definite standards as to what we are trying to do for ourselves on the matter of taste and odor. There are some other matters, too, the matter of turbidity, for instance, the Public Health standards have a very liberal provision as to what constitutes an acceptable turbidity in our water. The standards that we set for ourselves are considerably better than the minimum standards set by the U. S. Public Health Service.

MR. SAMSON: Thank you. That answers my question.

CHAIRMAN WILSON: Another question? Mr. Hershey.

Q. (By Mr. Hershey.) Mr. Hartung, will you tell us approximately in river miles the distance between Omaha, Nebraska, and St. Louis?

A. May I look at my notes? I have that here, if you will permit me.

MR. METZLER: It is on the chart behind you.

A. Yes. It is between 200 and 800. That is 600 miles. That is right.

Q. (By Chairman Wilson.) How far is that?

A. Six hundred miles approximately.

CHAIRMAN WILSON: Any other questions?

That is all.

(Witness excused.)

CHAIRMAN WILSON: Do you want to call another witness? I think sometime around 4:30 or a little later we will call another recess. It is a little early for that now because if we are going to run until 6 o'clock we can probably go further, if you have some short witnesses.

MR. EDELMAN: We have some short witnesses. This is the group of lay witnesses that was sworn in earlier. If you wish to proceed we may perhaps put one on even two witnesses on before 4:30.

CHAIRMAN WILSON: Yes. Go ahead.

MR. EDELMAN: Mr. Detmar.

MR. DETMAR: All right. Mr. R. R. Walton.

Mr. Walton is already sworn.

CHAIRMAN WILSON: What is that full name, please?

MR. DETMAR: R. R. Walton.

CHAIRMAN WILSON: How do you spell it?

MR. DETMAR: W-a-l-t-o-n.

ROLAND R. WALTON,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Would you tell this young lady your name, your address and your occupation, Mr. Walton?

A. Roland R. Walton, Onawa, Iowa. I am area engineer for the Onawa area of the Corps of Engineers, United States Army.

Q. Mr. Walton, what do you do in the course of your work on the river?

A. I have direct supervision over construction, surveys and construction, and all administration of the Missouri River from Yankton, South Dakota, to Blair, Nebraska.

Q. How long have you worked on the Missouri River?

A. Slightly over 30 years.

Q. How long have you worked on the stretch of the river between Yankton and Omaha?

A. Twenty-eight years.

Q. Mr. Walton, what have you observed, if anything, with respect to sewage or other substances in the Missouri River between Yankton and Omaha in recent times?

A. The conditions from Yankton down to the Big Sioux River, I would say, the mouth of the Big Sioux River, throughout the years has not been, at least visibly, bad. All I have to go by, of course, is observation. Starting at the Big Sioux and progressively and accumulatively I would say it increases. I say the bad condition; I am talking about the surface of the water, possibly. It is an iridescent film around the various sewers, the several sewers it comes out. Between the Big Sioux River and Omaha it is much worse than it is between Yankton and the Big Sioux River.

Q. Now, what kind of-- You say that there is an iridescent film, is that right?

A. That is correct.

Q. Have you observed any other substances of an unpleasant nature or like sewage?

A. Yes. We are required in our work to take reconnaissance trips over our stretch of the river monthly. In the course of these reconnaissance trips we take the depth of the water by means of a sounding pole and they are recorded on the maps. The position of these sounds are in relation to fixed points above the control works that we have, which the upstream limit of the control works at this time, the channel, channel stabilization structures, is out from Ponca, with the exception of some minor work between the Gavins Point Dam and the Yankton bridge. Throughout the years, taking these soundings, we used the wooden pole, wooden sounding pole, 18 feet long and as we came down by Sioux City, particularly down at Omaha too, there was always a coating on that sounding pole. At times, particularly in July and August when the dog days were on, it would soak through even the leather gloves.

Q. Of what did this coating consist, Mr. Walton, do you know?

A. Well, it was a scum, see, iridescent scum on the water. The composition of that I can not answer, of course. I know there was a scum there and there still is, as far as that is concerned.

Q. Now, directing your attention to the area near and at Sioux City, have you observed any change in the condition of the river above Sioux City and below it?

A. In relation to what, sir?

Q. Well, in relation to the amount of scum or other matter that you observed in the river?

A. Well, we have never throughout the years, even before the dams were put in, had the trouble with the bad condition on the surface of the water, like I said a while ago, between Yankton and the Big Sioux River. That has been less, we had less trouble, not only with our sounding poles but the scum would collect on your barges below the Big Sioux and on the hulls of the launches, the work boats and the wooden outboard skiffs, the safety skiffs, and between Yankton and the Big Sioux that was never as noticeable as it has been, as it was below between the Big Sioux River and Omaha.

Q. Would you tell us whether you have ever detected or noticed an appreciable odor on the river at Sioux City?

A. Very definitely you can notice it. Between the summer-- I will go back a little bit. Before the dams were put in we would have an occasional popup rise at different times of the year, particularly the ice breakup in April, the June rise, which sometimes would last a month. Any accumulation of sewage or what-have-you along the banks and the structures that would be deposited during the low water would generally be taken away by these popup rises. Since the dams are functioning, and they are doing a swell job, they control, the dams control, the discharge and the water surface, the elevation of the water surface, so that there is no runoff to carry this accumulation of silt or sewage away.

Q. Mr. Walton, what effect do these conditions have on your work or on the work of the men on the river, the Corps of Engineer men?

A. Well, for years we used to quarter our force account men, the hard labor men, on quarter boats, which was all right as a convenience for the Government. And it was a pretty good deal for the men. We would simply treat our water. The water was pumped raw from the Missouri River into tanks on the roofs of the quarter boats. The sediment went to the bottom and as it drained off, the water left in the tank they put chlorine tablets in. Now, for years they did that. It finally got to the place that the chlorine, a small chlorine tablet was furnished us, we still couldn't get water that you could use satisfactorily and the quarter boats were abandoned. That is one effect of the increase in the sewage, one result, that is one result. And we are still bothered, of course, very much in and around Sioux City, in and around Omaha. The timber piling from the high bank in the yards, the material yards, out into the water, the Government yard below the Floyd monument, took that over in 1933, there have been thousands of piles drafted there. Even in the higher stages of the river, particularly in July and August, the piles are out there at the water's edge over the high bank, they will get this accumulation, there is a film, there is a film deposited on the sides of these piles and if they are sinkers, why, the film goes clear over the top of it, and it makes it very difficult for the laborer or the worker that is binding these rafts of pile together to retain his footing. We have had many an accident that way.

Q. I see. Well, now, in your many years on the river, Mr. Walton, have you observed whether it was used for recreational purposes?

A. Yes, sir, I have.

Q. Can you tell us?

A. Any statement I make is relative only.

Q. Well, can you tell us whether the use of the river by people for recreational purposes has increased or decreased?

A. It has increased very materially; I don't know what percent. Several hundred percent; a wild guess, that would be just a conjecture. Each year the number of outboard, inboard too, particularly the steel crafts, the Chris-Crafts, the number of them increased materially. In our area now there are three marinas being built by the private land owners that own the farms along there, three marinas that will hold possibly 25 to 50 boats, a marina back in the back.

Q. (By Chairman Wilson.) How many boats did you say?

A. Sir?

Q. How many boats did you say?

A. Oh, I estimate 25 to 50 outboard boats.

Q. (By Mr. Detmar.) That is at each marina?

A. Yes, sir.

Q. And you say in "our area". What area is that?

A. Well, that is between Yankton and Blair at the present time.

MR. DETMAR: I see. You may inquire.

We have no further questions.

CHAIRMAN WILSON: You may cross-examine.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Walton, during what period of time has this 700 percent increase in boating activities occurred?

A. Well, I--going back over, in the Omaha District approximately 28 years, during that period of time, 28 years.

Q. I see. Has the increase in the use of the river for recreation such as boating been particularly noticeable in the last three or four years?

A. Very much so, yes, sir. The big increase has been since Fort Randall Dam and particularly Gavins Point Dam was closed.

Q. In '54?

A. Yes, sir, '55.

Q. Your base of operations is at Onawa material yard, do I understand?

A. No, sir, we have an area office right in the town of Onawa. All our activities originate there. That is the focal point for all our work. We do around from seven and a half to nine and a half million dollars worth of construction work each fiscal year.

Q. Where with reference to--well, where on the river with reference to Onawa do you cache the boats?

A. I didn't catch the last.

Q. Where do you keep the boats that you use?

A. Oh, our boats. Our work is done principally by contractors. We do have a force account, a hired laborer force, of around 20 men. We have two fair-sized work launches, twelve steel barges, three drag lines, five or six bulldozers, that work on the force account, they work directly, they are Government employees, Civil Service. The--

Q. You are familiar with distances on the river and river miles as between your installation near Onawa and Sioux City, is that correct?

A. That is correct.

Q. You mentioned the iridescent film around the sewers. Are there sewers between--that is below Sioux City and above Onawa that empty into the river other than from the City of Sioux City?

A. Yes, sir.

Q. Where are those located generally, sir?

A. One comes out from South Sioux.

Q. From South Sioux City?

A. There is one at Dakota City, a very small one.

Q. Yes.

A. The air base, where is that? A fair-sized one. It is probably 30 inches, a fair size. That is an approximation only, now. Then we go down to--Onawa doesn't dump.

Q. Right.

A. Decatur doesn't dump.

Q. That is far enough.

A. Yes.

Q. I just wanted to go to Onawa.

A. Yes, sir.

Q. From which side of the river does the air base sewer dump?

A. It is on the left bank, that is the Iowa side.

Q. And how far in river miles below the mouth of the Floyd, if you know?

A. Five and a half miles.

Q. Does the air base sewer dump raw sewage into the river?

A. Yes, sir.

Q. Does this same condition as to film on the piling and on your poles exist near those other sewers?

A. To a lesser degree, I would say.

Q. Does it depend somewhat, of course, on where the channel lies with reference to the outfall? Isn't that correct?

A. That is correct, yes, sir.

Q. Are there any other drainage ditches or anything like that that drain into the river from either the Iowa or Nebraska side between Onawa and Sioux City?

A. There are numerous ones. Between Dakota City and Homer there are two large creeks, they have been turned into drainage ditches now. There--I will probably miss some as I go down the river, but anyway there are several. We come down to Onawa, we have east of Onawa the Little Sioux comes over there, the Maple, that dumps in at River Sioux and those two streams carry quite a lot of water. There are several creeks and large drainage ditches, the Blackbird Creek comes through the reservation.

Q. That is from the Nebraska side?

A. That is on the Nebraska side, sir.

Q. Through the Winnebago reservation?

A. Yes, sir. The Tekamah Bottoms between Tekamah and Blair, they have a wonderful system of drainage ditches. At certain times, particularly 10 years ago or earlier than that when we were having, I would say, normal rainfall, possibly, those drainage ditches carried an enormous amount of water, a runoff. And on the left bank, like I said, we had the Little Sioux River; the Maple River dumps into the Little Sioux. We have the Soldier River, and for years the Boyer River was in our area. That is right there at Moville.

Q. You say that there are a number of large drainage ditches?

A. Yes, sir. Yes, sir.

Q. Would you hazard an estimate as to how many between Sioux City and Omaha, if you know?

A. Oh, between 20 and 25.

Q. Between 20 and 25?

A. Yes, sir.

Q. And that these have an enormous amount of runoff on certain occasions?

A. They do, yes, sir.

Q. What occasions do you refer to?

A. Well, I don't know whether you were in Sioux City when the Floyd flooded in '53. A seven-inch rain caused that. We could have a seven-inch rain in the valley over quite an extended area, I hope we don't, but it could happen. That is what I referred to.

Q. Right.

A. Yes.

Q. Now, when you say that there is an enormous amount of runoff, am I to believe from that, sir, that included in what the drainage ditch is bringing into the Missouri River are certain solids and debris, that type of thing.

A. The bottom land on both banks is accretion land. It has been brought in in the past centuries, possibly, from upstream. It is very easily eroded. When they dig the ditches they are very seldom protected on the side, the banks of the ditches. They are leveed all right, they are built up so they won't overtop, but the banks are left without any protection. And as the swift current goes by it picks up this silt, carries that out, just like in the Missouri River, see.

Q. And it is objectionable to you in the Missouri River as it goes by?

A. Oh, yes, yes, sir.

Q. Have you ever seen the bodies, decomposed or otherwise, of animals--

A. Yes, sir.

Q. --wild or of farm domestic animals in these drainage ditches?

A. Very many times. Very many times.

MR. STEIN: Mr. Chairman, we must object. This goes way beyond the scope of the direct examination. Now, in accordance with previous rulings we have nine witnesses here who can not be back. I understand the cut-off time is 6 o'clock. If we are going to allow counsel a latitude of cross-examination we will have to ask you at this time for a consideration of an extension beyond 6 o'clock to accommodate these nine witnesses.

CHAIRMAN WILSON: Well, I think that we will permit this witness to answer this line of questioning. If you have any objection to it, you will take it subject to the objection.

But I might ask counsel how much longer he thinks it will take him to complete his cross-examination?

MR. DAVIS: I believe, Mr. Chairman, that I am about through. This is the first time in several years that there has been a witness who had actual knowledge of the facts involved, not from books but from what he has observed, and I was trying simply to establish this drainage ditch situation. And having done that, I will say that as far as I am concerned he is again the Government witness.

CHAIRMAN WILSON: I have already ruled you may pursue this line of examination.

MR. DAVIS: That is all I want to establish.

CHAIRMAN WILSON: The question is about how much longer it will take. I was about to declare a recess as soon as we are through with this witness. But if you are going to take very much longer, I would take a recess now.

MR. DAVIS: No, I am all through, sir.

CHAIRMAN WILSON: Go ahead.

MR. DAVIS: I am done.

CHAIRMAN WILSON: Are you through now?

MR. DAVIS: Yes.

CHAIRMAN WILSON: Do you have any further questions?

MR. DETMAR: Yes, sir, just one.

REDIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Walton, you have been on the river over 30 years?

A. Yes, sir.

Q. How many seven-inch rains have you noticed in that time?

A. Oh, that is a hard question.

Q. Was it one a year?

A. Possibly not. Possibly not.

Q. One every two years?

A. One every five years, maybe.

MR. DETMAR: Thank you. That is all.

CHAIRMAN WILSON: Have any members of the Board any questions?

MR. SAMSON: I have none.

MR. KURYLO: I have one, just a matter of this runoff and these drainage ditches.

Q. (By Mr. Kurylo.) How often during each year and of what duration do you have any significant runoff from these drainage ditches?

A. If you are in this part of the country you should realize, you will know definitely, that our rainfall has been below normal for several years. Previous to seven or eight years ago we would have seasonable rains. Iowa is the place where it rains just a day before it is too late, you know. And the drainage ditches were put there purposely, of course, to carry the excess water off. And in addition to that, for everybody's information, in our area there are 218 miles of private levees built and maintained by the individual land owners. They are not needed so bad right now since the Gavins Point Dam was closed. That closure was made in '55.

CHAIRMAN WILSON: Any further questions?

That is all.

(Witness excused.)

CHAIRMAN WILSON: We will take a 10-minute recess.

(RECESS)

CHAIRMAN WILSON: The hearing will come to order.

MR. DETMAR: Mr. Chairman, the Government's next witness is Mr. E. L. Edwards. Mr. Edwards has been previously sworn.

CHAIRMAN WILSON: How does he spell that name?

MR. DETMAR: Edwards, E-d-w-a-r-d-s.

E. L. EDWARDS,

called as a witness on behalf of the Government, being first duly dworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Edwards, will you give your name, address and tell your occupation to the Board and the young lady here?

A. My name is E. L. Edwards, no first name. 7009 Minne Lusa Boulevard, Omaha, Nebraska. I am Assistant Chief of the Operations Branch, Corps of Engineers, Omaha also.

Q. Mr. Edwards, can you tell us what you do in your position as Assistant Chief of the Operations Branch?

A. As Assistant Chief of the Operations Branch my duties are multiple and many. Some of the items I might mention are issuing permits for marinas, the dredging in the Missouri River between Rulo, Nebraska, and Sioux City, Iowa, the marking of channel--that only occurs between Omaha and Rulo because the upper river is not navigable to commercial navigation at the present time--and looking after commercial navigation statistics.

Q. Now, Mr. Edwards, how long have you lived and worked on the Missouri River?

A. Including the lower river below Kansas City and near St. Louis about 29 years, a little over.

Q. How long have you worked on it between Yankton and Rulo?

A. Approximately 26 years.

Q. What have you seen with respect to the effects of water pollution in the Missouri River along that stretch?

A. Along the Sioux City-Rulo stretch?

Q. Yes, sir.

A. Naturally below each city, why, we see certain sewage coming out, specifically at Sioux City, specifically the Floyd River. Certain times of the day you can see a lot of red blood. You can see solids, white solids often about the size of your fingernail up in the Floyd River, which I have an occasion to inspect since the Federal Government furnished money for improving part of the Floyd River. I have to come through there some and see the discharges from the various pipes, outlets, culverts, and so forth, that discharge. I also have occasions to go by I believe it is called Perry Creek, I am not familiar with all the names here in Sioux City. I also, naturally, pass the airport sewage pipe and make various reconnaissance trips up and down the Missouri River several times a year. Some years it may be eight or ten times, other years I may only get over it five or six times.

Q. Have you had occasion to examine the Missouri River in the area of Sioux City in this past 12 months?

A. Yes, I was here in January the last time.

Q. And were these conditions that you just described present then?

A. They were present then plus--I have a little weak stomach--almost a vomiting condition at Floyd River.

Q. Now, you have a number of men under your jurisdiction working on the river, is that correct?

A. Well, under the Corps' jurisdiction, if I might say.

Q. You may say.

A. Or part of the Corps. Yes, we average from 50 to 60 men which are on and off the river. Some of them may work only short times of day on the river, like a survey party, they are only on on short times, while we have floating plant people which are on a considerable part of the time and some floating plant people which live on the river.

Q. Now, are there any other people who do Corps of Engineers' work?

A. Yes, the Corps of Engineers naturally do a major part of their work by contract.

Q. About how many men are there working by contract?

A. That would have to be an approximate estimate on my part and I would say from 100 to 150 men.

Q. Now, you have indicated that the Missouri River is rather badly polluted at Sioux City?

A. That is my observation, yes.

Q. Would you say that this pollution constitutes any kind of a hazard, have you observed that it constitutes any kind of a health hazard to the men?

A. Yes. Some of our boats, if I may explain, carry quarters on them and kitchens and the men live there-- for instance, the dredge Louis, which we haven't had up close to Sioux City recently, but it has been above Blair, and which we probably will send up this way in the next year or so--have quarters on them and we naturally cook our food there, make our own ice, have our own meat, and naturally we have to guard against flies sitting on debris or anything that might be deposited on the bank and then flies getting into the kitchen where the men might contact some bacteria which is harmful.

Q. Well, now, did you tell us whether or not the men come into contact with water?

A. I did not. In our work crews--now, separate dredging from the work crews, because the dredging people stay there day and night. They don't get off the boat. The work crews come out daily and, oh, put rock in the river, piling in the river, or various other jobs they have, such as sounding. Whenever the men sound with a sounding pole or sounding line they must dip down in the water, the water gets on their hands. Sure, we don't want them to put their hands in their mouth, but, as you know, most people will. They light a cigarette, get it to their lips. They have no washing facilities on these work barges and things of that kind. The time comes to eat the noon meal and they have to eat their lunch without getting good clean--get the water off their hands. Or they can wash it in more sewer water, of course. The other things that come to my mind is in handling barges and other floating plant you use manila line a lot and naturally you tie it off and the slack will lay down into the water, and then when you pull the line in, why, the water will get all over your hands and, again, that is the way it comes in contact with your mouth. We try to watch that. We have done all kinds of things to help it because we are afraid of the water, the Missouri River water.

Q. Well, Mr. Edwards, have you ever observed any other material in the water which you know to constitute a hazard to life or property?

MR. DAVIS: May I hear the question, Mrs. Rankin?

(Question read.)

MR. DAVIS: That is objected to as being incompetent, irrelevant and immaterial, and calling for the opinion and conclusion of this witness on the very matter that is in issue here, and I don't believe that sufficient foundation has been laid, Mr. Chairman, to permit him to testify to that.

CHAIRMAN WILSON: Well, if the witness knows he may answer, subject to the objection.

A. I can answer providing I am allowed to clarify it.

CHAIRMAN WILSON: Go ahead.

A. In my department the Corps of Engineers is responsible for oil pollution insofar as it affects navigation. Now, naturally we are watching oil in large quantities so I am around to various places where oil might come in and see it. Now, what happens to the oil, in the winter time I would say that it was not a hazard, but in June, July and August, when it is hot, oil will come out of the small streams, float down the river, and in my opinion just floating on the river it is not a hazard. But what actually happens is it floats into the willows or into debris and brush along the edge of the river and clings onto the vines and as they dry out and the oil--and hot weather makes it more volatile --the chances of fire from outboard motors or any other spark or any other way you want might ignite it, and I have actually seen fires, the results of fires, I didn't actually see them started, but we are sure that they were started from spark of some kind caused right from the very thing I am describing.

Q. (By Mr. Detmar.) Mr. Edwards, have you ever seen any of this oil coming from the vicinity of Sioux City or the Floyd River?

A. Only the Floyd River.

Q. Only the Floyd River. Was there a great deal of it comparatively speaking?

A. No, it was what I would call a light flow, rather blue in color, not black like I have seen at, well, like comes out of Union Pacific, for instance. The oil that comes out of Union Pacific and other towns--I shouldn't use that railroad particularly, but that happened to be the one I had in mind--is a very black, heavy material. This oil that I have seen come out of the Floyd River is of a light consistency, light blue, not black, and I have only seen it at various times, like someone might have dumped a barrel or a filling station dumped a couple barrels or drainage or something like that.

Q. But you have seen it come from the Floyd River?

A. Out of the Floyd River into the Missouri.

Q. Now, you said a littler earlier in your testimony, Mr. Edwards, that your office is in charge of issuing permits for marinas, is that right?

A. That is correct.

Q. Based on the issuance of permits, can you tell us whether there has been a substantial increase or any increase in the recreational uses of the Missouri River in recent years?

A. Yes. The recreation use, I would say in my 26 years up here, jumped from zero to 1,000 percent. However, this year just in the last four or five months we have issued about six or seven permits for new marinas between Omaha and Sioux City, including Council Bluffs, of course. And some of those marinas are quite extensive, I would say will hold 75 to 80 boats.

Q. Now, you mentioned that there is oil and other deleterious substances in the river. Does this do anything to your boats that the Corps maintains on the river?

A. Well, naturally it makes them slick and nasty and scum hanging on them, which is not desirable.

Q. Does it cost the Corps any money to clean the boats?

A. Well, yes, we have to clean them. Naturally that costs money. Everybody wants to work for pay.

MR. DETMAR: At the momemt the Government has no more questions.

CHAIRMAN WILSON: You may cross-examine.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Edwards, does the Corps of Engineers have control of the utilities on the Sioux City Air Base which you have mentioned?

A. Only the construction work, the new construction work going up, not any of the facilities that are already built.

Q. Do you have any information concerning the condition of the utilities upon the air base as operated by the Government, with particular reference to sewage disposal?

A. I am not qualified to answer. I do not have that knowledge.

Q. You do know, however, where the outlet into the Missouri River is as you have seen it?

A. Yes, I know where it comes in, about the size of the pipe.

Q. And that, of course, with reference to your weak stomach I suppose affects you the same way as up in the--

A. No, I would say that the Sioux City Air Base is not smelly and bad like the Floyd River. That Floyd River is tops around this part of the country.

Q. In other words, the air base sewage is clean sewage?

A. Would you repeat, please, sir?

Q. Is cleaner sewage?

A. Well, I wouldn't say that it isn't red and bloody and as smelly as the other.

Q. Then what you are saying is that it doesn't have industrial wastes in it?

A. Well, I didn't say what it had in it because I don't know what. I just know the sewer comes out there and it does not smell and it does not have as many solids in it. That is solids the way I think of them, not the way these specialists testified today. I am talking about solids as something you can see.

Q. Now, with reference to the coating of light oil which comes from--

A. May I correct you, sir. I did not say black oil up here.

Q. Light.

A. Oh, I am sorry.

Q. --which comes out of the Floyd apparently in quantities like as if a barrel of oil had been dumped, is that the way I understand you?

A. That is the way it would appear to me, yes.

Q. And which comes out of small streams, you said, also?

A. Oh, yes, yes. The Floyd is not the only one that has oil running out of it once in a while.

Q. And what other small streams?

A. Well, I have seen it come out of Perry, I have seen it come out of Indian Creek at Council Bluffs, and I have seen oil come out of Grace Street and practically all streams have some oil coming out of them.

Q. Grace Street in Omaha?

A. Yes. Indian Creek is Council Bluffs.

Q. Now, would you kindly--well, as I understand that testimony further, this oil cries on bushes and shrubbery along the river and that in your opinion therefore constitutes a hazard?

A. Well, after the weeks and willows dry and that oil hanging on them, it just ignites very easily, yes.

Q. Would you state to the Board the date and the place where any fires resulting from this occurred on the Missouri River which resulted in personal injuries to anyone or property damage to anyone?

A. I have not seen where it had caused personal injury or property damage. I only saw a fire, the results of a fire, which was down below Sioux City here about I would guess some five years ago.

Q. So that in the last five years you have only noted one such fire, which was five years ago, and which did not result in any injuries to anyone or any property damage, is that correct?

A. If you are specifically saying Sioux City. Now, I have seen others at other places.

Q. Well, how far below Sioux City?

A. Well, I saw one at Council Bluffs just two years ago, a tremendous one. Fire department and all went out on it.

Q. But this was how far below Sioux City?

A. Well, it was right below the Sioux City Air Base where I saw this.

Q. No one was hurt?

A. On the left bank.

Q. The Iowa side?

A. That is right.

Q. No one was hurt, no property was damaged?

A. No, just weed fire like you see.

Q. Would you state to the Hearing Board the dates that any epidemics have occurred of illnesses among your work force which resulted from water-borne diseases?

MR. STEIN: Mr. Chairman, we object to that. Epidemic is a very technical word in the medical profession and I don't think the witness is qualified to know what an epidemic is, and I scarcely think that any member here other than the M.D.s can tell us that.

CHAIRMAN WILSON: It will be received subject to the objection. He may answer as far as he knows.

A. I did not testify that there had been any epi--excuse me. I did not testify that there had been an epidemic.

Q. (By Mr. Davis.) And there has not?

A. Not to my knowledge.

Q. Among your work force that comes in contact with the water?

A. No epidemic to my knowledge.

MR. DAVIS: I have no more questions, Mr. Chairman.

MR. SAMSON: I have no questions.

CHAIRMAN WILSON: Do you have any redirect?

MR. DETMAR: Only one question, Mr. Chairman.

REDIRECT EXAMINATION

BY MR. DETMAR:

Q. Although there has been no epidemic among the men on your work force to your knowledge, does the Corps of Engineers consider that the polluted condition of the river is a health hazard to the men?

MR. DAVIS: That is objected to for the reason that this is purely hearsay.

CHAIRMAN WILSON: Well, I will let him answer, subject to the objection.

MR. DAVIS: And it is certainly not competent insofar as any proof here is concerned, nor is this witness, because it certainly even isn't his opinion, it is the opinion of the Corps of Engineers.

CHAIRMAN WILSON: We will take it subject to the objection and the Board will weigh the evidentiary value in consideration of the qualifications of the witness. He may answer if he has an opinion.

A. May I have the question again?

Q. (By Mr. Detmar.) The question is whether you know if the Corps of Engineers considers that the men are subjected to a health hazard when they work on the polluted Missouri River because of the pollution in the stream?

A. I will have to answer that in this way, that we are taking every precaution, such as distilling water and even on our big tow boat, our big dredge, installing a separate water system at the present time which a mechanical engineer can testify to better than I can.

Q. Do you do that to prevent the possibility of spread of disease among the men?

A. We do that to prevent our men from coming in contact with water which may be injurious to them.

MR. DETMAR: That is all.

CHAIRMAN WILSON: Any further questions?

MR. DAVIS: Yes.

RECROSS-EXAMINATION

BY MR. DAVIS:

Q. Does the Corps of Engineers, then, have any opinion as to whether this condition is aggravated by their failure to install a sewage disposal plant on the Sioux City Air Base?

A. The Corps of Engineers is not responsible for the decisions on the Sioux City Air Base. They only are directed by the Air Force to build certain structures. The Air Force themselves are the ones that have to do with the direction of building various buildings and utilities. The Corps only is directed. They design them, sure.

MR. DAVIS: That is all.

CHAIRMAN WILSON: Is that all? Any questions by members of the Board?

That is all.

(Witness excused.)

MR. DETMAR: The Government's next witness is John P. Hillebrandt, Jr. Mr. Hillebrandt will you come forward now.

Mr. Chairman, that name is spelled H-i-l-l-e-b-r-a-n-d-t.

CHAIRMAN WILSON: He was sworn before, wasn't he?

MR. DETMAR: This man has been previously sworn.

JOHN P. HILLEBRANDT, JR.

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Hillebrandt, will you give your name, address and occupation to this young lady here?

A. I am John P. Hillebrandt, Jr., 7257 North Ridge Drive, Omaha, Nebraska

Q. What is your--

A. My occupation, I am a mechanical engineer. Up until two weeks ago I was employed as Chief of the Plant Section for the U. S. Army Corps of Engineers, Omaha District.

Q. As Chief of the Plant Section of the Corps of Engineers in the Omaha District, Mr. Hillebrandt, precisely what did you do?

A. Well, I was concerned mainly with the maintenance, the improvement, procurement and betterment of construction equipment, which includes land equipment as well as floating plant.

Q. Can you tell us what you observed with respect to the condition of the Missouri River between Yankton and Rulo and its effect, if any, on your work in repairing and maintaining water craft?

MR. DAVIS: Excuse me. May I suggest you have a date there?

MR. DETMAR: I am sorry.

Q. (By Mr. Detmar.) In the past two years.

A. In the past two years?

Q. How long--well.

A. How long--

Q. How long were you in this work?

A. Well, I have been associated with this type of work since 1952, March of 1952.

Q. And in that time, of course, you had opportunity to observe the effect of the river and materials in the river, perhaps, on marine craft and marine engines, is that right?

A. Yes, that is right.

Q. Would you please tell the Board what that effect was?

A. Well, in the first place our boats used to have a raw water cooling system, that is it takes the water directly out of the river through a filter and cools engines. About 1950 or '51 this had to be converted into a closed cooling system because feathers and sticks and other debris were clogging the filters. Here recently, this past year, we have converted the dredge Louis sanitary cooling--or sanitary supply system into a treated water system. We have done this because we felt that there was a danger existed or a definite hazard existed--

CHAIRMAN WILSON: Mr. Hillebrandt, will you do as I suggested to previous witnesses? Just talk to the last Board member on the left.

A. O. K. We have done this principally because we thought there was a definite hazard existed for the men on this dredge Louis by which they would probably come in contact with this, the personal part of their body. Another reason we have done it, we have had a lot of trouble maintaining the sanitary equipment on this dredge. The third reason is the crossover when making repairs to the pipes.

Q. (By Mr. Detmar.) Now, then, as I understand, Mr. Hillebrandt, this material in the water has had a bad effect on the engines and you gave feathers as an example, is that right?

A. That is right.

Q. And you have also had to convert the water system on your dredge, the Louis, in order to protect the men's health, is that it?

A. Well, because we felt there was a danger to their health. In other words, we don't want to take any chances with these people.

Q. For many years before that, though, you had maintained the Louis without this change in the water system, is that correct?

A. That is right.

Q. Well, now, have the materials in the Missouri River between Yankton and Rulo--that is where the craft are used, isn't it?--affected the hulls of the boats?

A. Well, there is always a certain amount of debris and scum on these hulls which could probably, through the acid content, deteriorate the hull through electrolysis.

Q. And occasionally, then, you have to repair these hulls?

A. Oh, yes.

Q. And repaint them?

A. Oh, yes.

MR. DETMAR: I think that is all for the Government.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Hillebrandt, the changes that you have made in the cooling system and the treated water system, have they worked out satisfactorily?

A. Well, it is not as good as cooling with raw water, but they have been satisfactory.

Q. And you are still able to operate this particular dredge?

A. Oh, yes.

Q. And you are still able to have men live and work on it, is that correct?

A. Yes.

Q. Is this equipment that you speak of any different than the equipment on dredges used on other reaches of the Missouri River, if you know?

A. Well, this dredge that I am speaking of is the only channel dredge between Rulo and Yankton.

Q. Where is Rulo?

A. Rulo, Nebraska.

Q. I see. Well, how about from Rulo to St. Louis, are there other dredges?

A. There are two other dredges similar to this down there.

Q. And they have the same equipment?

A. They are later models by about two years.

Q. Well, do they have the same equipment with reference to cooling and treating the water.

A. That I don't know.

Q. Do you have any knowledge concerning the type of equipment used on dredges on the Ohio River?

A. No.

Q. And the Mississippi?

A. No.

Q. As far as you know, then, better equipment is not necessary only at this particular place?

A. Oh, no, I wouldn't--

Q. In fact, isn't it probably rather standard equipment?

A. I would say that a treated water system on a dredge should be standard equipment.

Q. Using any of our inland waterways, such as the Ohio, the Mississippi and the Missouri, isn't that true?

A. Now, I was principally speaking of the sanitary water supply system. The other water is treated on there already.

MR. DAVIS: I see. I have no other questions.

Q. (By Mr. Samson.) I have just one question, Mr. Hillebrandt. What do you mean when you say sanitary water system? I am a little confused on that.

A. Well, the water that is used in the toilets and in those particular cases.

MR. DAVIS: I am sorry. May I hear the answer, Mrs. Rankin?

(Answer read.)

MR. SAMSON: That is all. Thank you

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Hillebrandt.

MR. DAVIS: May I ask a question now? I am confused, Mr. Chairman.

CHAIRMAN WILSON: Oh, yes.

Q. (By Mr. Davis.) This is water that is used in the toilets on the boat?

A. Yes.

Q. Are they flushed into the river--

A. Yes.

Q. --or into receptacles?

A. They are flushed into the river.

Q. In other words, your own, as far as the toilets and sewage on your own boat from your crew, goes into the river?

A. We have plans to treat that as soon as Sioux City and Omaha have their treatment plants.

Q. Do you also have plans for the treatment of sewage from the Sioux City Air Base under the Corps' jurisdiction?

A. I don't know anything about the Sioux City Air Force Base.

MR. DAVIS: That is all.

MR. DETMAR: Thank you, Mr. Hillebrandt.

(Witness excused.)

MR. DETMAR: Mr. Chairman, the Government's next witness is Mr. C. R. Fick. That name is spelled F-i-c-k.

SECRETARY AYERS: Mr. Fick has been sworn.

MR. DETMAR: Mr.Fick has been sworn.

C. R. FICK,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Fick, will you give your name, address and your occupations to this young lady here?

A. My name is C. R. Fick. I am from Blair, Nebraska. I am Sheriff of Washington County and Chairman of the Washington County Board of Health.

Q. Sheriff Fick, you say you live in Blair?

A. I do.

Q. And you are Chairman of the Washington County Board of Health and also Sheriff of Washington County?

A. I am.

Q. How long have you lived in the Blair area?

A. All my life.

Q. Do you do any hunting or fishing?

A. A lot of it.

Q. Well, Sheriff, you must have observed the Missouri River from time to time not only when you hunted and fished on it, but also in the performance of your official duties as Sheriff and Chairman of the Board of Health. Can you tell this Board whether the Missouri River, as you have observed it in the area of Blair and elsewhere along Washington County's borders, is polluted?

A. Yes, it is.

Q. What have you seen in the river?

A. Well, I have hunted up by Decatur for a good many years and I have noticed much more corruption in the water there than I have on down the river, but I have noticed a fatty tissue similar to chicken fat and chicken feathers and foreign material such as that kind, some that I don't want to mention verbally.

Q. Well, you say you don't want to mention anything verbally. You can say yes if I mention it?

A. I will.

Q. Sheriff Fick, have you--I have just one note here from your statement as to the other material you have seen in the river. Have you seen contraceptives in the water?

A. I have.

Q. In large numbers?

A. Quite a few.

Q. Yes, sir. Can you tell us what you know with respect to the effect of the polluted condition of the river on the health of individuals living in Washington County who use the river?

MR. DAVIS: That--

A. Well--

MR. DAVIS: That is objected to for the reason that it is incompetent, irrelevant and immaterial and calls for the opinion and conclusion of this witness, and, Mr. Chairman, I submit no proper foundation has been laid.

MR. DETMAR: Mr. Chairman, I asked him what he knows.

CHAIRMAN WILSON: So far as that calls for the observations of the witness, the objection is overruled, the testimony will be taken subject to the objection.

Q. (By Mr. Detmar.) Please answer the question.

A. Well, in the last few years the sporting angle of water has come to the front immensely and especially at Blair and most any of the towns along the river as far as that goes, and there is any number of people that swim in the river and ski and boat and use it as a sport, and there is still a number of people that would use it that don't use it because thev don't like the filth that is in the river.

Q. Do you consider-- Do you know as Chairman of the Washington County Board of Health whether the river is believed by a Board of reputable physicians in the vicinity to constitute a health hazard?

MR. DAVIS: That is objected to as calling for hearsay, incompetent, irrelevant and immaterial.

MR. DETMAR: All right, I will rephrase that, Mr. Chairman.

Q. (By Mr. Detmar.) Sheriff Fick, as Chairman of the County Board of Health do you believe yourself that the river is a health hazard?

MR. DAVIS: Same objection as I urged above and the additional reason that this witness has not been shown competent to testify concerning this.

CHAIRMAN WILSON: Same ruling, it will be taken subject to the objection.

Q. (By Mr. Detmar.) Mr. Sheriff, it has been permitted that you answer this question.

A. Well, I couldn't say that the water was healthy. I wouldn't want to drink it myself.

Q. Would you bathe in it?

A. No, not unless--not any more I wouldn't. I used to when I was a kid, I used to swim in it, but I don't think the river was as bad then as it is now.

Q. Would you bathe in it with a cut on your arm?

A. Well, I had a cut on my arm one time that I got from an outboard motor and when the doctor sewed it up he says, "We had better give you a shot of tetanus," and he gave me a shot of tetanus and a shot of penicillin because he remarked at the time that that water was not very clean.

MR. DAVIS: That I move to strike as hearsay.

MR. DETMAR: How was that hearsay? This is what the doctor did to him.

MR. DAVIS: Gentlemen, I don't propose to argue it. I am just making a record here. And I want the record to show I object to the statement concerning what the doctor said because it is hearsay, which it is.

CHAIRMAN WILSON: It will be received subject to the objection.

Q. (By Mr. Detmar.) And did I understand you to say that the condition of the river has affected sports fishing?

A. To a certain extent, yes.

Q. Would you please develop that just a little more?

A. Well, there is a number of people that don't like the Missouri River because they feel it is dirty water.

Q. In other words, it inhibits the use of the river by some?

A. Beg pardon?

Q. I say, in other words, the condition of the river inhibits its use by some persons?

A. That is right.

Q. Can you tell us whether you know if it has affected the fish in the river?

A. Well, something affects them because every now and then there is an oily taste in both catfish and carp, I have observed that a number of times.

MR. DETMAR: I think that is about all.

CHAIRMAN WILSON: Cross-examine?

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Fick, there is sport fishing on the Missouri River in the vicinity of Tekamah and Blair, though, is there not?

A. May I hear that? I didn't hear all that question.

Q. There is sport fishing on the Missouri River in your county?

A. Yes, yes.

Q. And there are game fish currently in the river such as pike, bass, and so forth?

A. Yes.

Q. Has that condition increased or improved since the dams were closed at Gavins Point?

A. Well, my personal belief is that the game fish is on the increase in the Missouri River owing to the fact that the river is clearer than it used to be before these dams were put in.

Q. Well, that is the point I was trying to establish. You have answered my question very well. Thank you. Do people on the river as it borders your county, some people, use it to swim in?

A. Oh, yes, there are people who use it for swimming.

Q. In considerable numbers?

A. No, not too many. They don't around Blair any more owing to the fact that we have a swimming pool now.

Q. Is the river there used for recreational purposes such as operating outboard motors, boats, and so forth, on it?

A. You ask--

Q. I mean there is boating going on?

A. Oh, yes, yes.

Q. In the clement weather in the Missouri River adjacent to your town?

A. That is right, yes.

Q. To include water skiing and that type of activity?

A. Yes.

MR. DAVIS: I have no more questions, Mr. Chairman.

MR. DETMAR: No more questions.

CHAIRMAN WILSON: From the Board?

Q. (By Mr. Samson.) Sheriff Fick, how large a town is Blair?

A. Blair is between four and five thousand.

Q. And how far is it located downstream from Sioux City?

A. It is probably, oh, approximately about a little over 100 miles.

Q. Does Blair have a sewage disposal treatment plant?

A. Blair has one that will be completed within 60 days, to my understanding. We started on it several months ago.

Q. And how is that being financed?

A. Well, it is being financed through taxation.

Q. You mean through the sewer use fee?

A. Well, no, there is no sewer tax. It is a city tax. I think there was a mill levy made for that.

MR. SAMSON: I see. That is all. Thank you Sheriff.

CHAIRMAN WILSON: Any more questions?

That is all.

MR. DAVIS: I have on that subject.

Q. (By Mr. Davis.) The plant is not open yet but will be, as I understand it, this year?

A. Our sewer?

Q. Yes.

A. Our disposal plant?

Q. Yes.

A. It will be opening; my understanding is it will be open within the next 60 days.

Q. Right.

A. They have been working on it for several months and I see that it looks like it is completed, but my understanding is that they haven't hooked up to it yet.

Q. What treatment is afforded in the plant, if you know? Is it just primary treatment?

A. Is it what?

Q. Just primary treatment will be afforded in the plant?

A. Well, I can't answer that because I am not too familiar with disposal plants.

Q. Yes, I asked you if you knew, Sheriff, and you don't. Your understanding is that the erection of this plant has been financed by a one mill--

A. Well, I don't know how many mill levy, but I understand that that is the way it is financed. I don't want to say how it is financed, but I am sure that it is financed from a levy taxation on the property owners.

Q. Ad valorem tax, I think, on your property?

A. Well, I would think so. I don't want to say for sure.

Q. All right. Then you don't want to say for this record for sure which it is. Do you know if the Federal Government contributed to the expense of it and, if so, what percent?

A. Well, my understanding is that they do contribute to a certain portion of it.

Q. But as to the exact percent you are not advised?

A. Well, I don't know.

MR. DAVIS: No other questions.

CHAIRMAN WILSON: Any other further questions anyone?

That is all.

(Witness excused.)

CHAIRMAN WILSON: It is getting near 6 o'clock, so if you have a short witness you could put on--

MR. DETMER: I have a short witness.

MR. STEIN: Sir, we have five witnesses here who have been sworn in, have come extensive distances, all private parties, not public officials, at their own expense, considerable expense to attend this hearing, and we ask that the Hearing Board consider extending the hearing until these witnesses can be heard.

CHAIRMAN WILSON: How long do you think it will take?

MR. STEIN: Our presentation will be limited to less than five minutes a witness.

CHAIRMAN WILSON: You say you have about five witnesses?

MR. STEIN: Yes, sir.

MR. DETMAR: Yes, sir.

CHAIRMAN WILSON: Well, I would ask the reporter if she would be willing to continue long enough for that? It might take until 6:30.

MR. DAVIS: May I express my opinion, Mr. Chairman? I think to continue for five or six witnesses after we worked as long as we have today would be barbarous as far as I am concerned, sir. I do not--while I sympathize with the witnesses themselves who are present waiting the opportunity to testify, I think that the Government, certainly, who is putting them on could have anticipated the length of time that this would take. In other words, I am not going to share their responsibility.

I am going to take the blame, though, for suggesting that we quit no later than 6 o'clock. I think that the Chairman and some members of the Board, Mr. Poole who is ill, certainly must feel some fatigue at this time, and if you have noticed my questioning the last half hour or so, I am tired. And I don't think it would be fair to ask anyone to continue beyond the hour of 6 o'clock.

CHAIRMAN WILSON: Well, I don't think that the testimony of these witnesses could very effectively be presented under the circumstances by trying to rush them through at such a late hour, and therefore I think we will have to stand on our original plan and adjourn for the day at 6 o'clock.

MR. STEIN: May we put the witness's affidavits in who will not be able to appear tonight as sworn testimony?

CHAIRMAN WILSON: Well, that would be up to counsel. I suppose you could take their depositions.

MR. STEIN: Yes, we do have them.

MR. EDELMAN: In other words, if Mr. Davis will stipulate that the witnesses if called would testify to what they would say in their affidavits without waiving any objection to whatever is in the affidavit, that might expedite it in that direction.

CHAIRMAN WILSON: Well, I assume that you would have to submit a proposal to counsel as to what they would testify and let him decide on the basis of each proposal.

MR. DAVIS: I can not in good conscience, Mr. Chairman, consent to any procedure which does not permit the cross-examination of any witnesses. That has been my position ever since the Governor's letter and it will be until we have finished. I don't think that would constitute good process.

CHAIRMAN WILSON: Certainly the Board can not impose any such requirement on counsel for the city.

MR. DAVIS: Right. And I raise the question.

MR. STEIN: We would like to call as our next witness Monte West. And I should indicate, to set the record straight, that I don't think that the Government could have anticipated the time this would take.

CHAIRMAN WILSON: Well, I don't know that anyone could have anticipated it. We simply have to take the situation the way it is.

MR. DETMAR: This is Mr. West. He has previously been sworn. He spells his name W-e-s-t.

MONTE WEST,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. West, will you tell this Board and the young lady here your name, address, and occupation?

A. My name is Monte West. I live at 1350 North Irving, Fremont, Nebraska. And I am a duck and goose decoy manufacturer and also a commercial duck and goose hunter.

Q. A commercial duck and goose hunter?

MR. GABE PARKS: Mr. Chairman, we can't hear him up here.

CHAIRMAN WILSON: Speak up as loud as you can, Mr. West, and understand that you are trying to make the people who are sitting on the farthest side of the room hear you. So talk to them.

Q. (By Mr. Detmar.) Mr. West, this Board is interested in anything that you know with respect to drinking untreated water from the Missouri River. Would you please tell us what, if anything, you do know on that subject?

A. Yes, I can cite you an instance. In early December, 1957, during the hunting season where a party of five men and myself were hunting on the Missouri River northeast of Tekamah, Nebraska, I recall it was an extremely warm day for December, there was ice in the river, and we all had heavy clothes on. Consequently, we were a little thirsty. And all we had in the party was hot coffee and tea with us. And right in front of the blind there was water running over the ice which looked crystal clear, so four of the six drank some water from the river. That night, I suppose around 2 o'clock, I became very ill, had fiolent stomach cramps, vomited, and extreme diarrhea. I was sick all through the next day, it gradually tapered off. I guess it was two days later I returned back to my blind up near Tekamah and the same party of hunters were present except one and we were discussing the situation of being sick and we come to find out that all four of us had similar illnesses and approximately the same time.

Q. That is the four that drank water?

A. That drank water, yes, sir. Two of us--

Q. What about the two that did not drink the water?

A. Two of the party of six didn't drink any of the river water.

Q. Did they get sick?

A. No.

Q. I see. Well, now, did you eat and drink anything in common prior to drinking the water?

A. Yes. We all brang our own lunch, prepared in our individual homes, and we shared our lunch and also shared our coffee and tea among all six of us.

Q. So that the only thing that the four of you took internally which the other two did not take was the water from the Missouri River that you drank?

MR. DAVIS: That is objected to as being a misstatement of the record. The witness just said they shared the lunch, the coffee and the tea.

CHAIRMAN WILSON: Well, the witness should confine his answer to what he observed himself, of course.

MR. DETMAR: I will rephrase that, Mr. Chairman.

Q. (By Mr. Detmar.) Then the only thing that the four of you took that the other two did not take internally on this day in question was the water from the Missouri River?

A. Yes, that is right.

MR. DETMAR: That is all.

CHAIRMAN WILSON: Cross-examination.

MR. DAVIS: We move to strike the witness's testimony as irrelevant, incompetent and immaterial to this matter.

CHAIRMAN WILSON: The testimony may stand subject to the objection.

MR. SAMSON: No question here.

CHAIRMAN WILSON: Any questions?

MR. DETMAR: Thank you, Mr. West, very much.

(Witness excused.)

CHAIRMAN WILSON: If you have one other witness whose testimony will take a very short time, we will take him.

MR. DETMER: Very well.

I will call Mr. Harry Henatsch.

That name, Mr. Chairman, is Henatsch, H-e-n-a-t-s-c-h.

HARRY R. HENATSCH,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Henatsch, you are entirely familiar with the procedure here. Would you give the lady your name and occupation?

A. It is Harry R. Henatsch, 125 North Thirty-eighth Avenue, Omaha.

Q. Mr. Henatsch, what is your occupation and your avocation?

CHAIRMAN WILSON: And will you please speak up so that the people over on the far side of the room can hear you?

THE WITNESS: Yes, sir.

A. I am a lawyer and do some hunting and fishing on the Missouri.

Q. (By Mr. Detmar.) Do you hunt and fish frequently?

A. Well, as much as my work and my wife will permit I do.

Q. You may have some--there may be some here in a similar position. Mr. Henatsch, this Board is interested in the condition of the Missouri River from the point of view of its pollution. Can you tell us what you know on this subject?

A. I will just take a second for a little background. I have a friend who farms on the Iowa side right across from Tekamah and three years ago he and I built a cabin on his river front. We seine minnows off the bars in the river for fishing and I used to take my family up there, my wife and my girls, fishing on occasion.

Q. You say you used to. Why don't you do it now?

A. Well, one Sunday afternoon this farmer and I were out in this boat and we had gone across the channel to the Nebraska side where the water wasn't quite so swift and I had one of my girls, she was then about 11, in the boat with me, with us, and I observed a contraceptive floating down the river right next to the boat and it so provoked me that I have never taken any of my kids or my wife on any daytime fishing on the river since then.

Q. I see. Mr. Henatsch, have you observed any other evidences of pollution of the Missouri River?

A. Well, the channel comes into the Iowa side there, it is on a bend, and there is quite a lot of white scum that forms in the trash and the timber that has sort of ganged up right along the river bank. It is sort of a greasy white scum. And then the water that is on the bars when you seine minnows, I am speaking now of water that is trapped that isn't running, well, it is just a sort of a greasy substance.

Q. I see. And that is deposited by the river on the banks and bars?

A. No, that is on the high bars where the water isn't running.

MR. DETMAR: I understand. The Government has no more questions.

CHAIRMAN WILSON: Cross-examine?

Members?

Q. (By Mr. Samson.) I just want to clear up a point. Mr. Henatsch, where is this in respect to Sioux City where you hunt and fish?

A. Well, it is about midway, it is about a mile--it is just directly straight east of Tekamah.

Q. I see. It would be about midway between Sioux City and Omaha, is that right?

A. It is about a mile south of River Sioux, Iowa.

Q. Now, in connection with this white, scummy, greasy matter that you referred to, does that have a smell or an odor?

A. No, I can't say, I have just never noticed it as having an odor. It is sort of like tar--not tar, but lard, only it is in substance so that you can just squeeze it in your fingers and sometimes it is flaky when it gets dry. It is just a white foam that congregates along the bank on occasion. I haven't seen it at all times.

MR. SAMSON: Thank you very much.

CHAIRMAN WILSON: Any other questions?

That is all.

(Witness excused.)

CHAIRMAN WILSON: I don't know whether to venture to pass on this suggestion or not, but would anybody be agreeable to starting at 8:30 in the morning? First I have to ask the reporter.

MR. DETMAR: Mr. Chairman, the Government have--I am sorry.

CHAIRMAN WILSON: What did you start to say?

MR. DETMAR: The Government have three witnesses. Two of them have come a long ways, can not be here tomorrow. They are private persons with independent businesses. We don't believe their testimony would take very long.

MR. DAVIS: Mr. Chairman, answering your questions, I would be very agreeable to coming down as early as 7 in the morning, but today I have had it. And specifically 8:30 is fine and dandy.

CHAIRMAN WILSON: Are the members of the Board agreeable to that?

MR. POOLE: I am agreeable under a certain amount of protest.

(Off the record.)

CHAIRMAN WILSON: Let the record show that with the consent of counsel for the Government and the City of Sioux City, Exhibits 18 and 19 were returned to Dr. D. W. Ryckman.

All right, we will adjourn until 8:30 tomorrow morning.

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WHEREUPON, the hearing was adjourned until 8:30 o'clock a.m. of the following day, at which time the following further proceedings were had and entered of record, to wit:

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